

SERVICE
MANUAL **2110L**

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model 2110L

Stereophonic Tuner

marantz**MARANTZ DESIGN AND SERVICE**

Using superior design and selected high grade components, MARANTZ Company has created the ultimate in stereo sound. Only original MARANTZ parts can insure that your MARANTZ product will continue to perform to the specifications for which it is famous.

Parts for your MARANTZ stereo are generally available within 72 hours throughout the nation via a toll-free line to our National Parts Depot in California. The sales professionals who take your call immediately refer to their own desk top computer terminal and can quickly determine the availability and price information you require. If, for some reason, your order should exceed our available stock, we usually can instantly provide an alternate replacement part or current delivery information. When the order is placed and confirmed, the computer simultaneously generates "hard copy" orders at the distribution center. As hard copies come directly from the computer to the national parts depot, your requested stock is assembled and prepared for shipment and placed on the first available carrier for delivery to you.

ORDERING PARTS

Phone orders will eliminate mail delays, and we encourage the use of this method. If you order by mail, use MARANTZ parts order forms which are available from our National Parts Depot located at the following address:

SUPERSCOPE NATIONAL PARTS DEPARTMENT
20525 Nordhoff Street
Chatsworth, California 91311
Phone: 1-800-423-5108
1-213-998-9333

The following information must be supplied to eliminate delays in processing your order:

1. Complete address.
2. Complete part numbers.
3. Complete description of parts.
4. Model number for which part is required (indicate MARANTZ).
5. Account number (for account customers only).

Direct consumers will be provided with the current retail price quotation on available parts in order to advise them of the cost of the parts and shipping.

OVERSEAS PARTS ORDERING

Parts may also be ordered from the following overseas addresses:

CANADA

Superscope Canada, Ltd.
3710 Nashua Drive
Mississauga
Ontario, Canada L4V1M5

AUSTRALIA

Superscope (Australasia) Pty., Ltd.
32 Cross Street (P.O. Box 604)
Brookvale 2100 N.S.W.
Australia

JAPAN

Marantz Japan, Inc.
3622 Kamitsuruma
Sagamihara Shi
Kanagawa, Japan

EUROPE

Superscope Europe, S.A.
Avenue Leopold III, 2
7120 Peronne-les-Binche
Belgium

Marantz France
Rue Louis Armand 9
92600 Asnieres
Hauts-de-Seine
France

Marantz Audio U.K. Ltd.
London Road, 203
Staines
Middlesex
England

Superscope GmbH
Max-Planck-Strasse 22
D-6072 Dreieich 1
West Germany

All of the above locations are fully equipped to take care of your total service needs. Because various countries have differing configuration requirements, it is necessary that you contact the service facility in your particular country. In the event that there is no service location listed for your country, please contact the nearest facility for the necessary assistance.

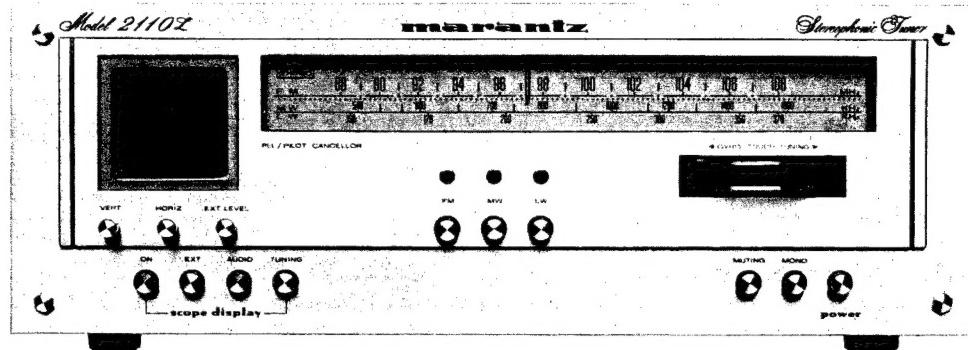
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TABLE OF CONTENTS

Section	Title	Page
1. P.W. BOARDS		1
2. TEST EQUIPMENT REQUIRED FOR SERVICING		2
3. SCOPE DISPLAY ADJUSTMENT		2
3.1 AM Tuning Display Adjustment		2
4. AM ALIGNMENT PROCEDURES		2
4.1 AM IF Alignment		2
4.2 MW Frequency Range and Tracking Alignment		2
4.3 LW Frequency Range and Tracking Alignment		3
5. FM ALIGNMENT PROCEDURES		3
5.1 FM Frequency Range and Tracking Alignment		3
5.2 Stereo Separation Alignment		4
5.3 Muting Threshold Adjustment		4
5.4 FM 25 µS Output Level Adjustment		4
6. VOLTAGE CONVERSION		4
7. DIAGRAMS		5
7.1 Block Diagram		5
7.2 Power Supply Board Schematic Diagram and Component Locations - P800		6
7.3 Scope Amp Board Schematic Diagram and Component Locations - P900		7
7.4 Tuner Board Schematic Diagram and Component Locations - P200		8
7.5 Scope Display Switches Board Schematic Diagram and Component Locations - PR00		11
7.6 Function Switches Board Schematic Diagram and Component Locations - PS00		12
7.7 Mode Switches Board Schematic Diagram and Component Locations - PT00		12
7.8 Function Indicator Board Schematic Diagram and Component Locations - PY01		13
7.9 Dial Lamp Board Schematic Diagram and Component Locations - PZ01		13
7.10 Function Circuit Board Schematic Diagram and Component Locations - PU01		13
8. EXPLODED VIEWS AND PARTS LIST		14
8.1 [C01-99] Front Panel		14
8.2 [C02-99] Top Cover		15
8.3 [C03-99] Rear Panel		16
8.4 [P01-99] Front Chassis and General Parts		17
8.5 [P02-99] Scope Dial Assembly and P.W. Boards		18
8.6 [P03-99] Main Chassis and P.W. Boards		19
8.7 [H01-99] Packing Materials		21
8.8 Electrical Parts List		22
9. TECHNICAL SPECIFICATIONS		27

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MODEL 2110L AM/FM STEREOPHONIC TUNER



INTRODUCTION

This service manual was prepared for use by Authorized Warranty Stations and contains service information for Marantz Model 2110L AM/FM Stereophonic Tuner.

Servicing information and voltage data included in this manual are intended for use by the knowledgeable and experienced technician only. All instructions should be read carefully. No attempt should be made to proceed without a good understanding of the operations in the tuner.

The parts list furnishes information by which replacement parts may be ordered from the Marantz Company. A simple description is included for parts which can usually be obtained through local suppliers.

1. P.W. BOARDS

As can be seen from the circuit diagram, the chassis of Model 2110L consists of the following units. Each unit mounted on a printed circuit board is described within the square enclosed by a bold dotted line on the circuit diagram.

1. Tuner mounted on P.W. Board P200
2. Power Supply mounted on P.W. Board P800
3. Dial Lamp mounted on P.W. Board PZ01
4. Function Indicator mounted on P.W. Board PY00
5. Scope Amp mounted on P.W. Board P900
6. Scope Display Switches mounted on P.W. Board PR00
7. Function Switches mounted on P.W. Board PS00
8. Mode Switches mounted on P.W. Board PT00
9. Function Circuit mounted on P.W. Board PU01

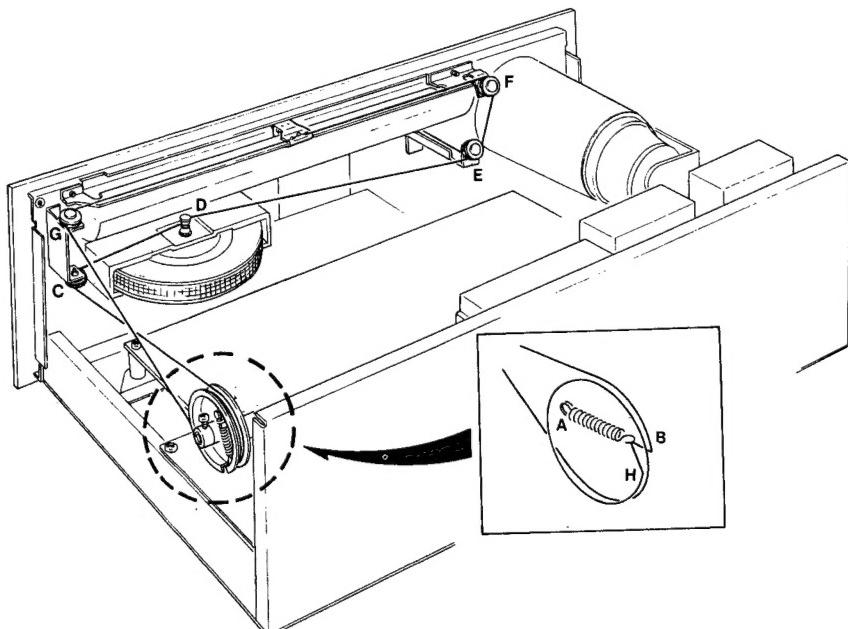


Figure 1. Dial Stringing

2. TEST EQUIPMENT REQUIRED FOR SERVICING

This table lists the test equipment required for servicing the Model 2110L Tuner.

Item	Manufacturer and Model No.	Use
AM Signal Generator		Signal source for AM alignment
Test Loop		Use with AM Signal Generator
FM Signal Generator MPX Signal Generator	Sound Technology Model 1000A	Signal source for FM alignment Stereo separation alignment and trouble shooting
Distortion Analyzer Audio Oscillator AC VTVM	Sound Technology Model 1700A	Distortion measurements Sinewave and squarewave signal source Voltage measurements (AC)
Oscilloscope	Tektronix Model T932 Philips Model 3232	Waveform analysis and trouble shooting
Frequency Counter	Fluke Model 1900A	MPX Oscillator adjustment (VCO)
Circuit Tester		Trouble shooting
DC VTVM	Fluke Model 8000 "Digital" Simpson Model 313, Triplet Model 801	Voltage measurements (DC)
AC Wattmeter	Simpson Model 1379	Monitors primary power to tuner
Line Voltmeter	Simpson Model 1359	Monitors potential of primary power to tuner
Variable Autotransformer	Superior Electronic Co., Powerstat Model 116B-10A	Adjusts level of primary power to tuner

3. SCOPE DISPLAY ADJUSTMENT

- Set the EXT LEVEL control to its fully counterclockwise position.
- Depress the SCOPE DISPLAY ON and AUDIO pushswitches in.
- Adjust the HORIZ and VERT controls to center the dot in the small circle in the center of the scope display.
- Adjust the BRIGHT control (R001) on the rear panel until the brightness becomes dark a little.
- Adjust the FOCUS control (R002) so that the spot may be come smaller and circular.
- Turn the EXT LEVEL control to its fully clockwise position.
- Connect a 150 mV, 1 kHz signal to the SCOPE INPUTS R jack and adjust R928 (H. GAIN) until the horizontal deflection is around 3 cm.
- In turn, connect the same signal to the L jack and similarly, adjust R927 (V. GAIN) until the vertical deflection is around 3 cm.
- Set the HORIZ and VERT controls to the 12-o'clock position and adjust R925 (H. CENTER) until the spot comes in the horizontal deflection center.
- Similarly, adjust R926 (V. CENTER) until the spot comes in the vertical deflection center.

3.1 AM TUNING DISPLAY ADJUSTMENT

- Depress the SCOPE DISPLAY ON and TUNING pushswitches.
- Depress the MW or LW pushswitch.
- Adjust R931 until the spot comes in the center below the base line without tuning into a station.

4. AM ALIGNMENT PROCEDURES

4.1 AM IF ALIGNMENT

- Connect a sweep generator to the J140 and an alignment scope to the R155.
- Rotate each core of IF transformers L152 and L151 for the maximum height and flat top symmetrical response.

4.2 MW FREQUENCY RANGE AND TRACKING ALIGNMENT

- Set AM signal generator to 455 kHz, (place the tuning pointer at the low end) and adjust the coil L156 for minimum audio output.
- Set AM signal generator to 525 kHz. Turn the tuning capacitor fully closed (place the tuning pointer at the low end) and adjust the oscillator coil LU02 for maximum audio output.
- Set the signal generator to 1630 kHz. Place the tuning pointer in the high frequency end and adjust the oscillator trimmer CU06 for maximum audio output.
- Repeat steps 2 and 3 until no further adjustment is necessary.
- Set the generator to 600 kHz, tune the tuner to the same frequency and adjust a slug core of AM ferrite-rod antenna L001 for maximum output.
- Set the generator to 1400 kHz and tune the tuner to the same frequency and adjust the trimming capacitor CU01 for maximum output.
- Repeat procedures 5 and 6 until no further adjustment is necessary.

NOTE: During tracking alignment reduce the signal generator output as necessary to avoid AGC action.

4.3 LW FREQUENCY RANGE AND TRACKING ALIGNMENT

1. Set AM signal generator to 145 kHz. Turn the tuning capacitor fully closed (place the tuning pointer at the low end) and adjust the oscillator coil LU01 for maximum audio output.
2. Set the signal generator to 380 kHz. Place the tuning pointer in the high frequency end and adjust the oscillator trimmer CU04 for maximum audio output.
3. Repeat steps 1 and 2 until no further adjustment is necessary.
4. Set the generator to 170 kHz, tune the tuner to the same frequency and adjust a slug core of AM ferrite-rod antenna L001 for maximum output.
5. Set the generator to 350 kHz and tune the tuner to the same frequency and adjust the trimming capacitor CU02 for maximum output.
6. Repeat procedures 4 and 5 until no further adjustment is necessary.

5. FM ALIGNMENT PROCEDURES**5.1 FM FREQUENCY RANGE AND TRACKING ALIGNMENT**

1. Connect an FM signal generator to the FM antenna terminals and an oscilloscope and an audio distortion analyzer to the OUTPUT jacks on the rear panel.
2. Set the generator to 87.4 MHz and provide about 3 to 5 μ V. Place the tuning pointer at the low frequency end by rotating the tuning knob and adjust the pitch of oscillator coil L105 to obtain maximum audio output.
3. Set the generator to 109 MHz and provide about 3 to 5 μ V. Rotate the tuning knob and place the tuning pointer at the high frequency end and adjust the trimming capacitor C121 for maximum output.
4. Repeat steps 2 and 3 until no further adjustment is necessary.
5. Set the generator to 90 MHz and tune the tuner to the same frequency. Decrease signal generator output until the audio output level decreases with the decreasing generator output. Adjust the pitch of antenna coil L101 and RF coil L102 for maximum output.
6. Set the generator to 106 MHz and tune the tuner to the same frequency. Decrease the signal generator output until the audio output level decreases with the decreasing generator output. Adjust the trimming capacitors of antenna and RF tuning circuits for maximum output.
7. Repeat steps 5 and 6 until no further adjustment is necessary.

8. Connect the center tuning meter to the test points J136 and J137. Adjust the L201 so that the tuning meter pointer indicates its center. Depress the SCOPE DISPLAY TUNING pushswitch. Adjust the R227 until the tuning bar is located the center of the oscilloscope. Set the FM signal generator to 60 dB at 98 MHz and tune the tuner to the same frequency in the vertical trace of the oscilloscope. Adjust the L202 for minimum distortion.

5.2 STEREO SEPARATION ALIGNMENT

1. Set the FM signal generator to provide 1 μ V at 98 MHz. Tune the tuner to the same frequency so that the tuning bar is located the center of the oscilloscope. Then turn off the modulation of the generator, connect a frequency counter to test point J138 and adjust R304 so that the frequency counter may precisely read 76 kHz.
2. Modulate the generator with stereo composite signal consisting of only L or R channel (of course a pilot signal must be included).
3. Adjust the trimming resistor R336 for maximum and same separation in both channels.

5.3 MUTING THRESHOLD ADJUSTMENT

1. Set the FM signal generator output to provide 12.5 μ V (IHF) at 98 MHz and tune tuner to the same frequency. Adjust the trimming resistor R212 for the threshold level of 12.5 μ V. (During this adjustment turn the FM MUTING pushswitch "on").

5.4 FM 25 μ S OUTPUT LEVEL ADJUSTMENT

1. Set the FM signal generator to provide a 400 Hz, 50% modulated 98 MHz mono signal, at 1 μ V output. Precisely tune the tuner to 98 MHz.
2. Depress the FM 25 μ s pushswitch, and adjust R216 until the outputs of both channels are 580 mV.

6. VOLTAGE CONVERSION

The Model 2110L is equipped with a universal power transformer that may be adjusted to operate up 110 V, 120 V, 220 V, or 240 V AC at 50 to 60 Hz. To convert the unit to a different power source voltage, reposition conversion plug as shown in Figure 2.

CAUTION: DISCONNECT POWER SUPPLY CORD FROM AC OUTLET BEFORE CONVERTING VOLTAGE.

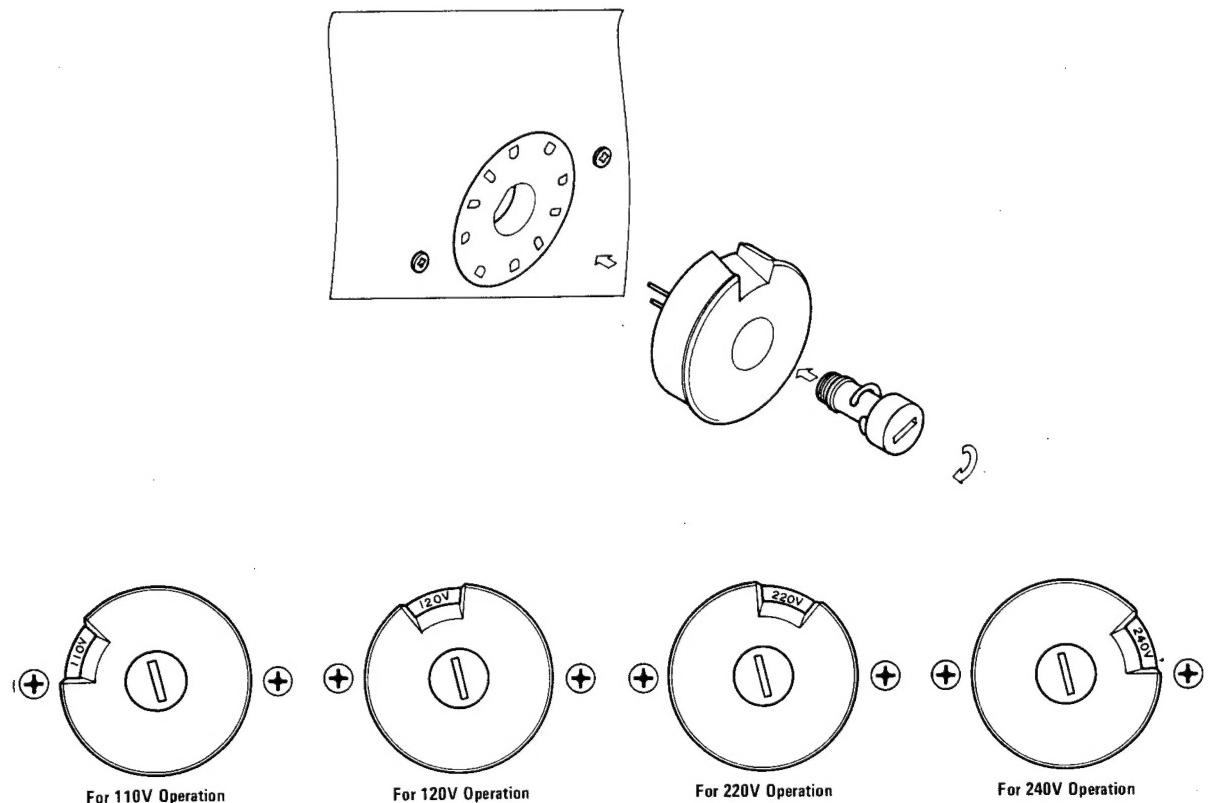


Figure 2. Voltage Conversion Chart

FTZ REGULATION

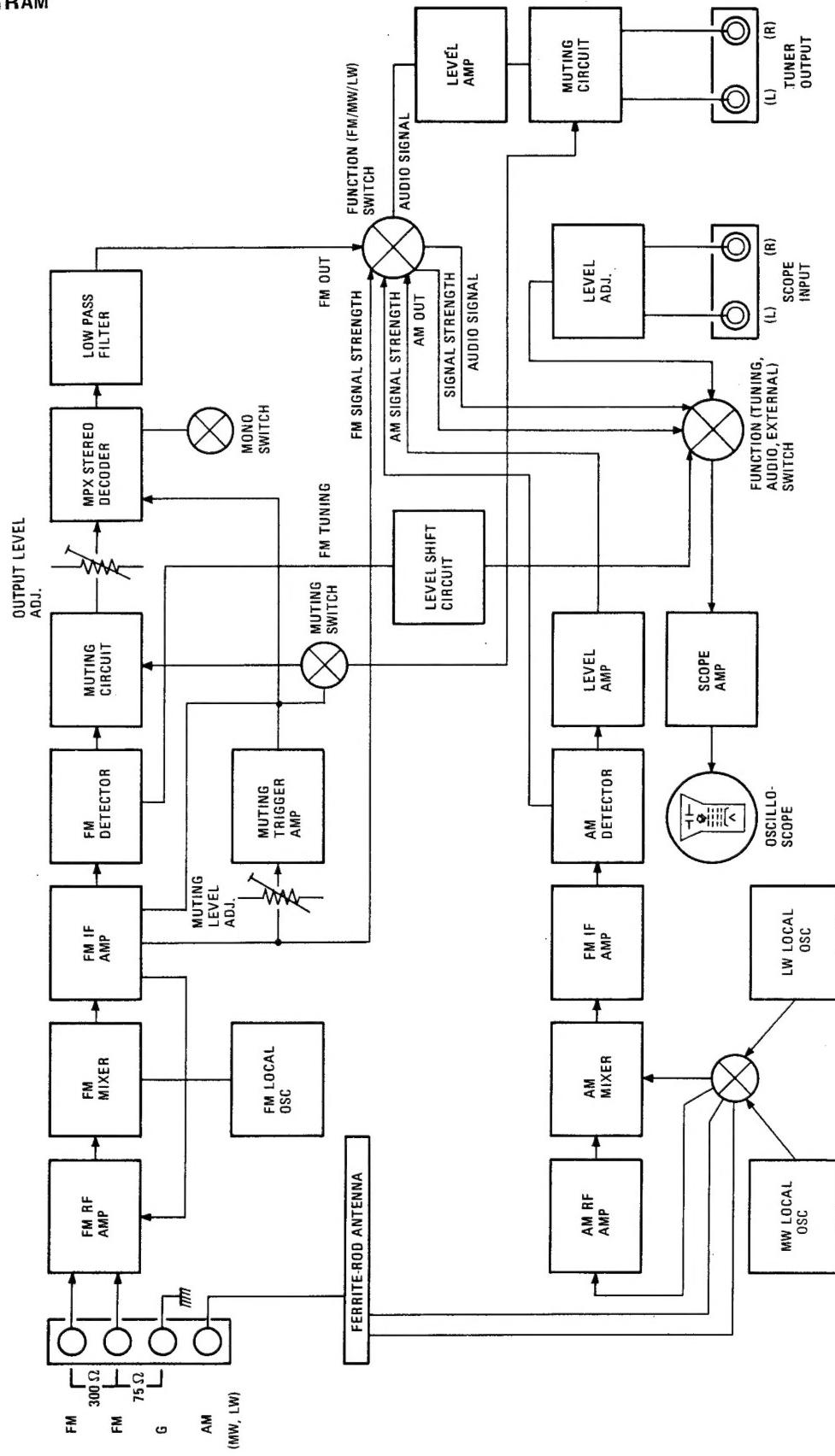
Instruction for the use in the range other than specified in FTZ codes.

Achtung für die Leute, die in dem Gebiet wohnen, wo die FTZ-Bestimmungen vorherrschend sind.

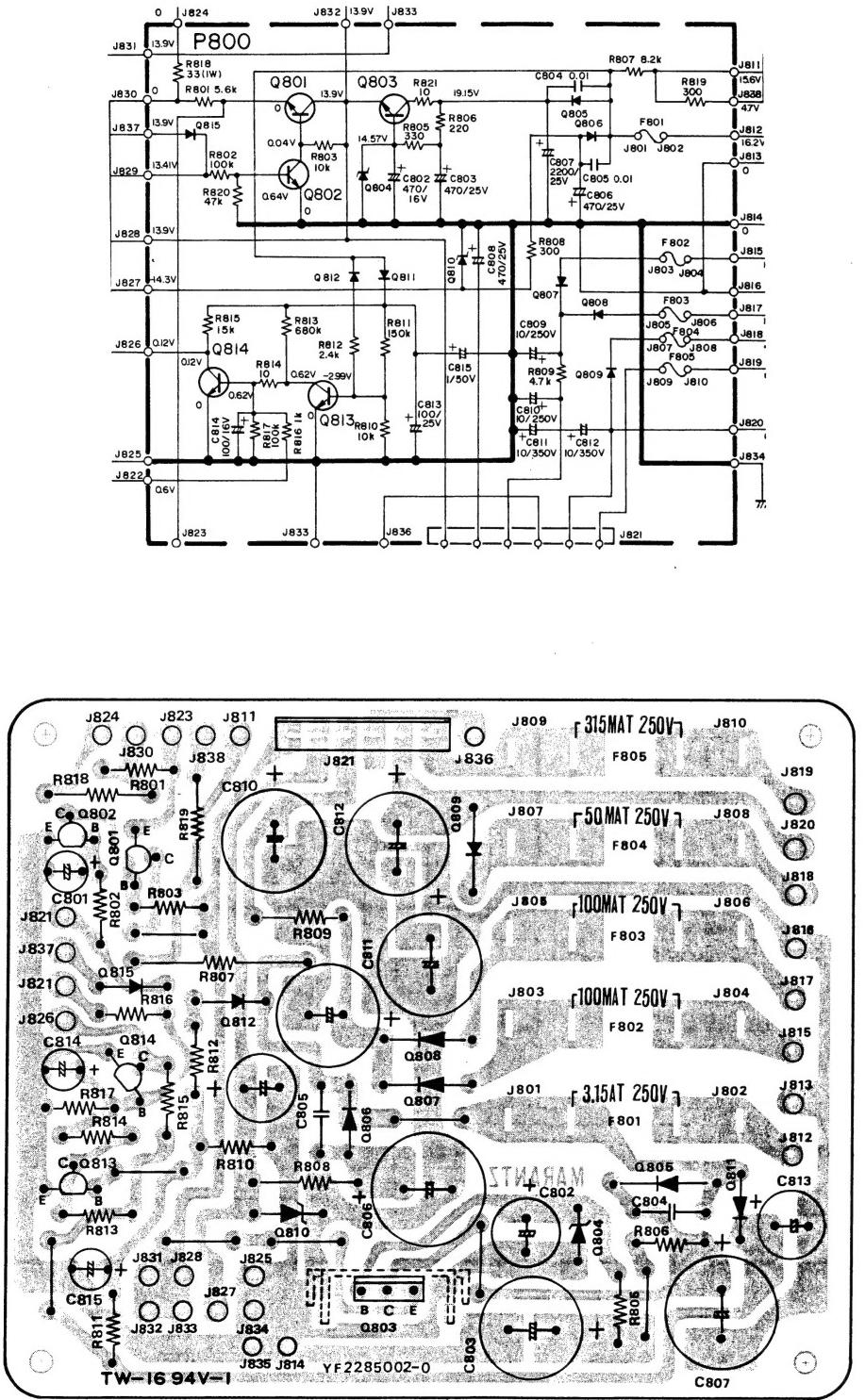
Sollte das Gerät auch für Frequenzen ausserhalb des in den FTZ-Bestimmungen angegebenen Bereiches empfangebereit sein, bitten wir, den Bereich durch Nachstellen des Kernes in der Oszillatorenspule (in der Abbildung mit "FTZ" gekennzeichnet) so zu korrigieren, dass er den Bestimmungen entspricht.

7. DIAGRAMS

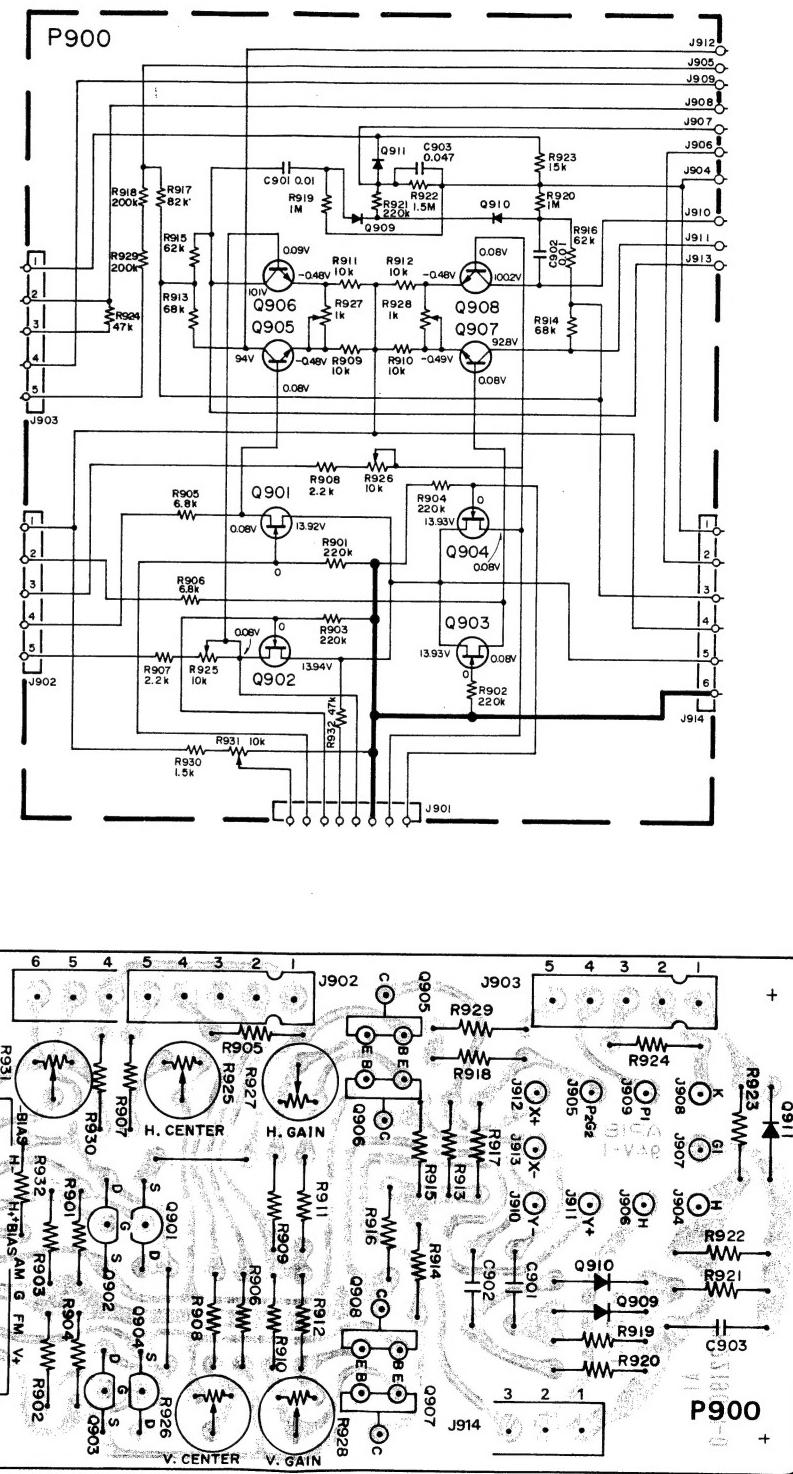
7.1 BLOCK DIAGRAM



7.2 POWER SUPPLY SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS - P800



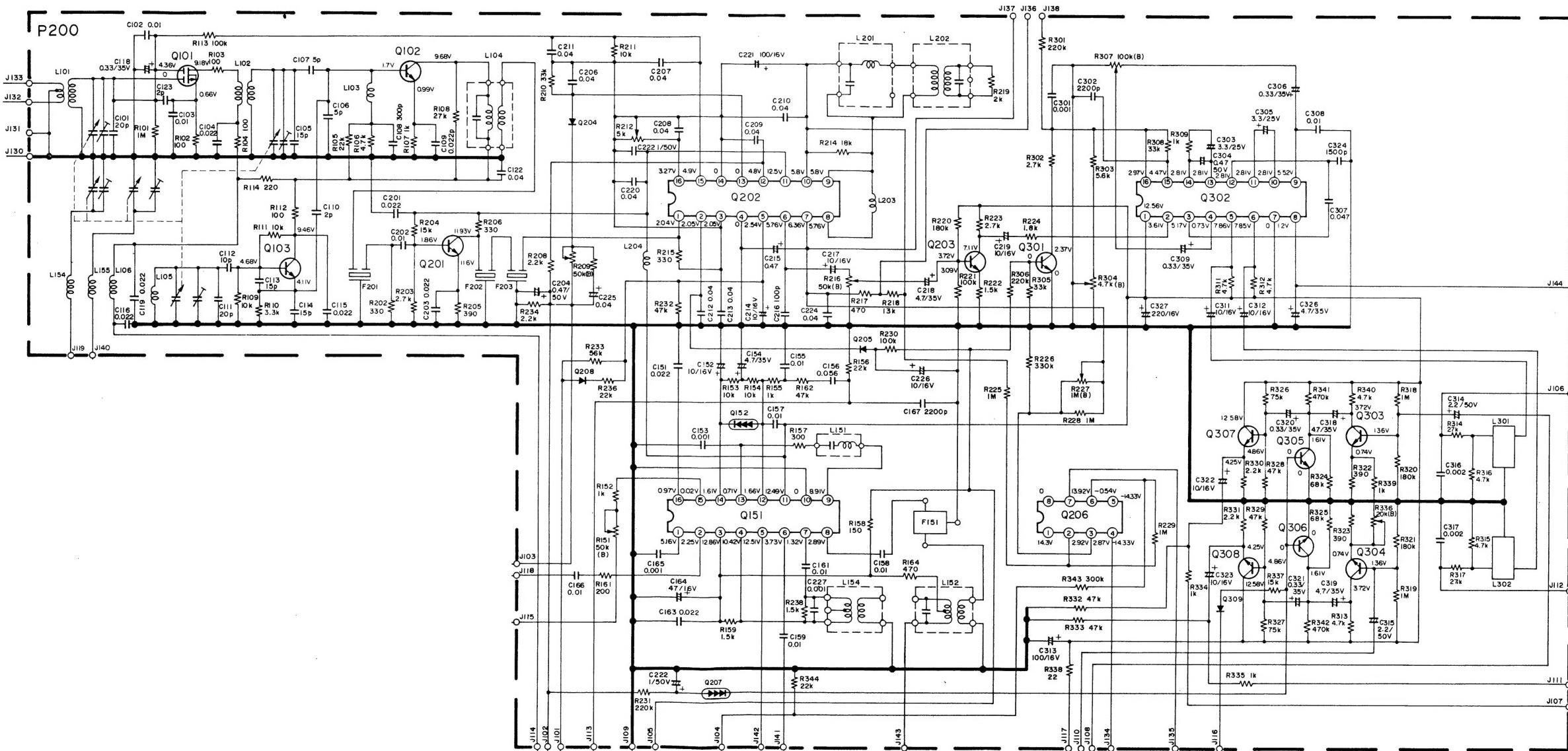
7.3 SCOPE AMP SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS - P900

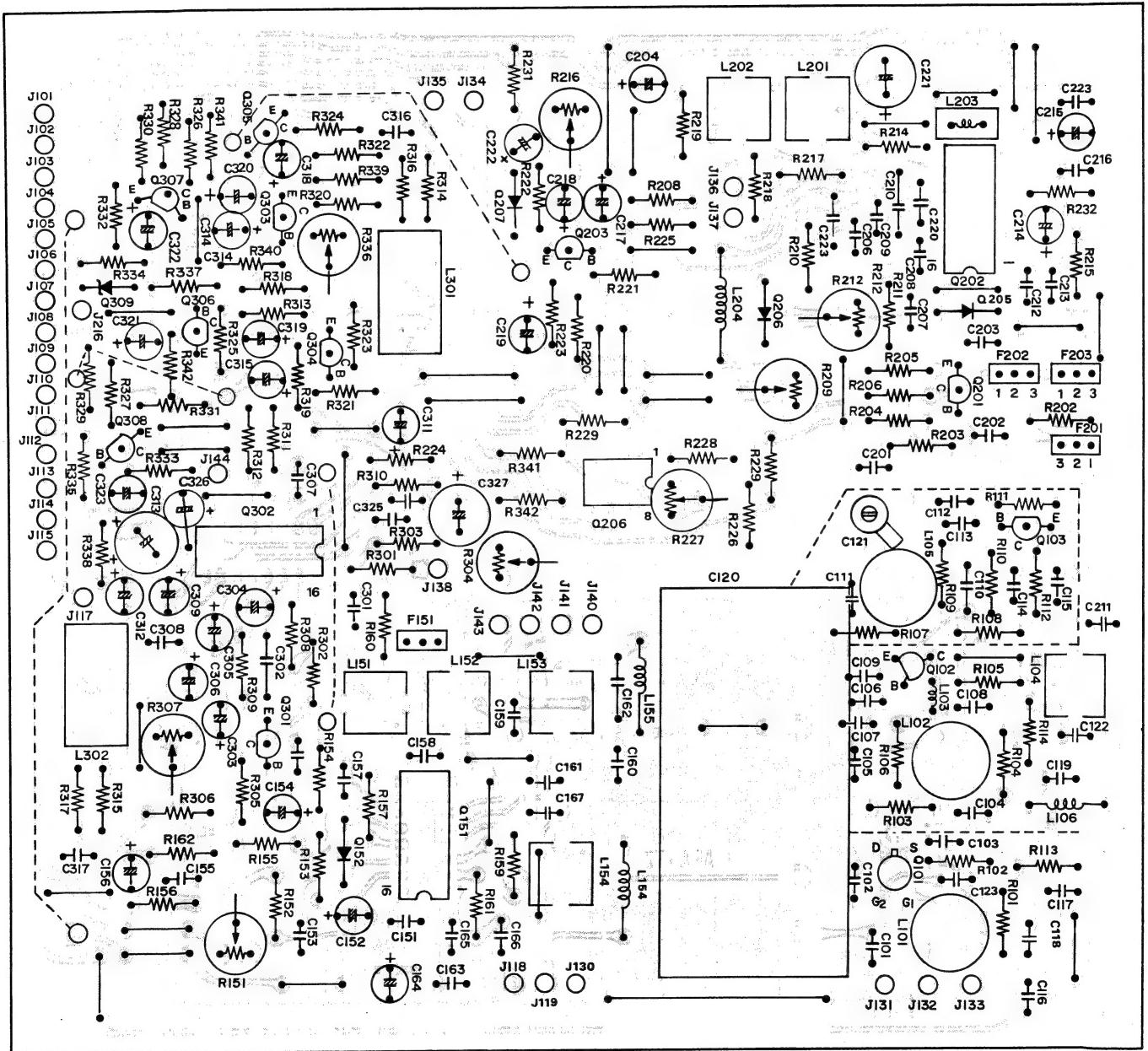


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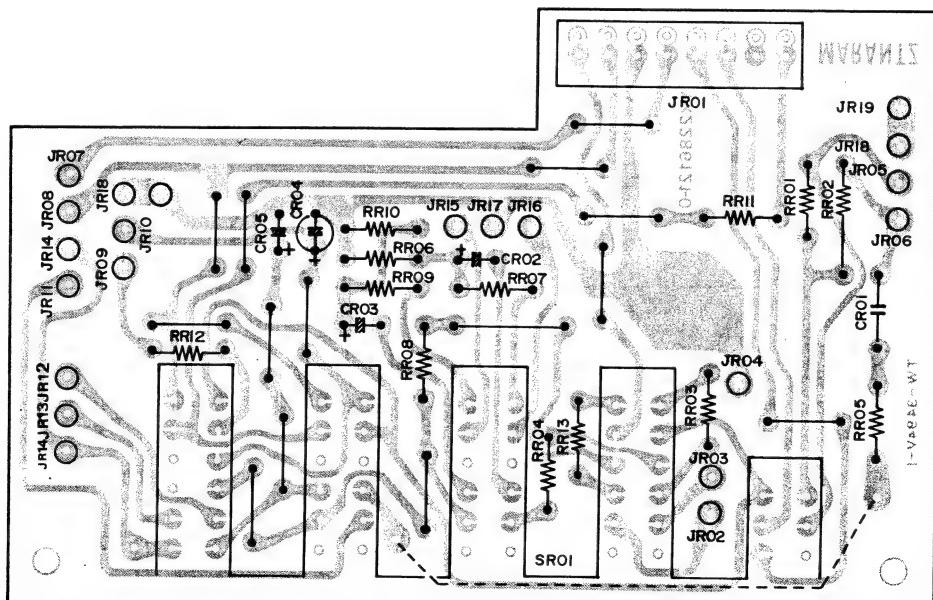
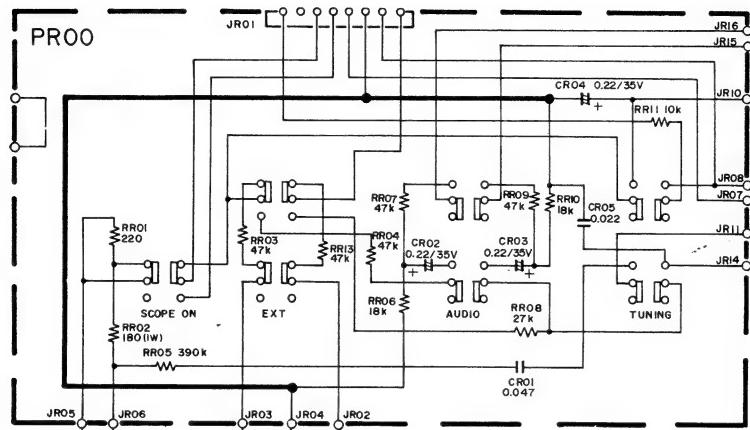
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7.4 TUNER BOARD SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS - P200

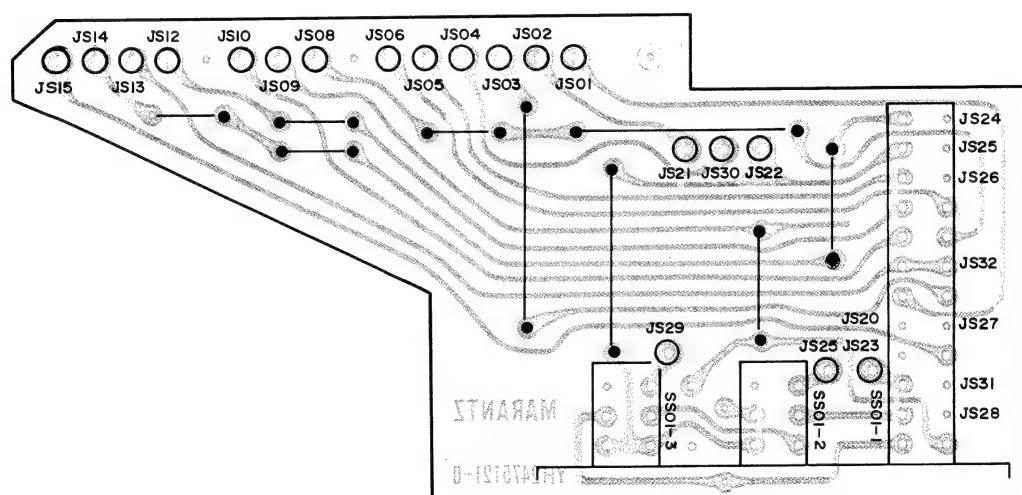
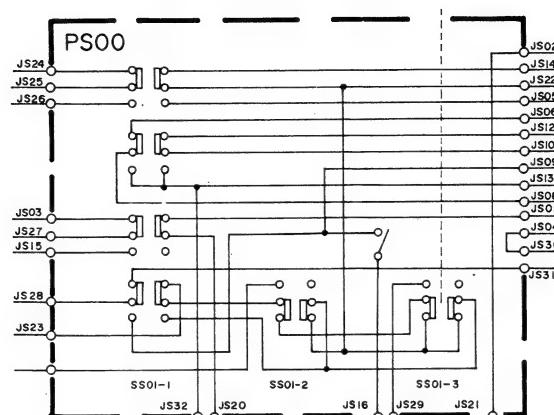




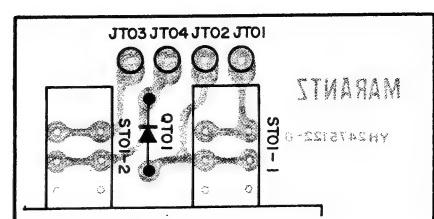
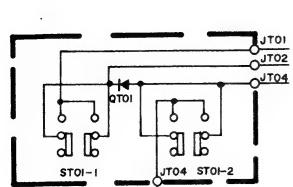
7.5 SCOPE DISPLAY SWITCHES SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS - PRO0



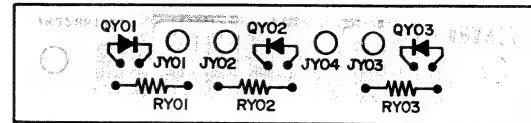
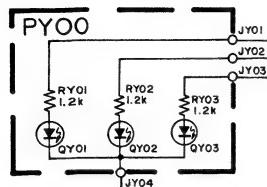
7.6 FUNCTION SWITCHES SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS - PS00



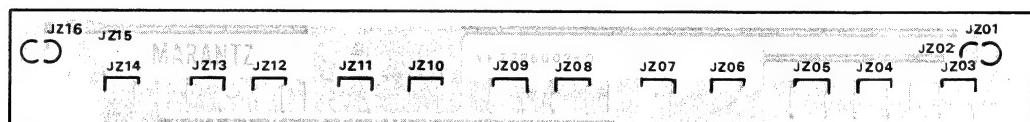
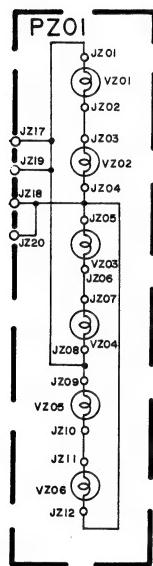
7.7 MODE SWITCHES SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS - PT00



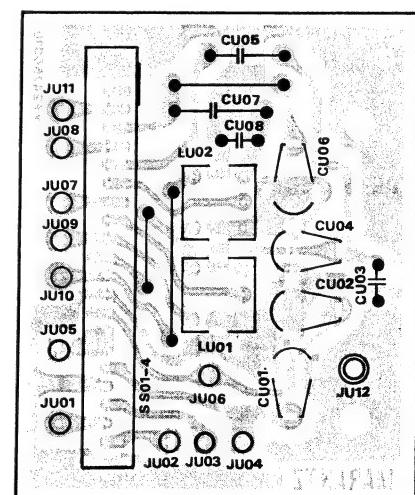
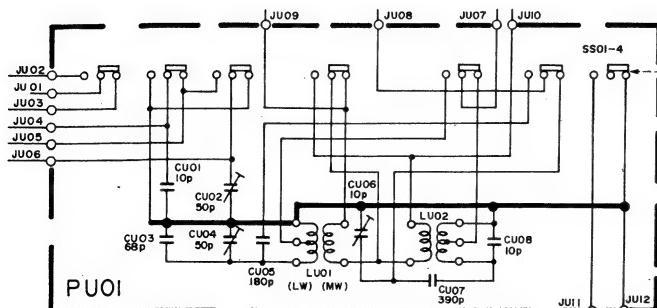
7.8 FUNCTION INDICATOR SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS - PY01



7.9 DIAL LAMP SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS - PZ01

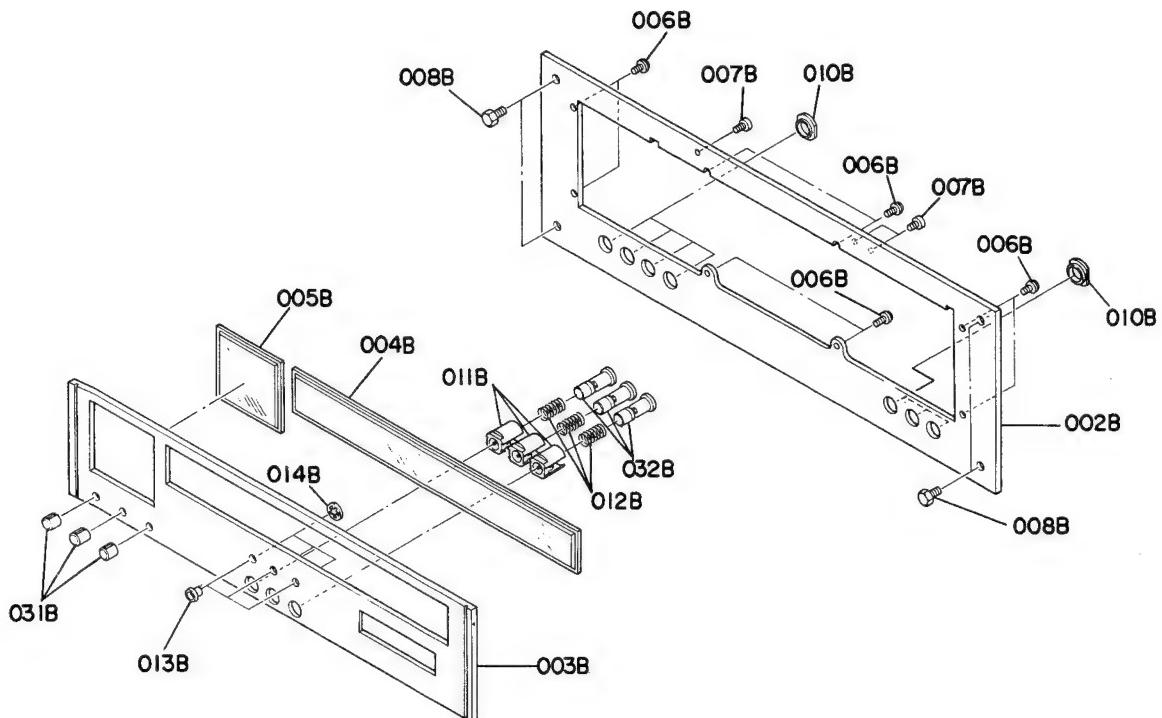


7.10 FUNCTION CIRCUIT BOARD SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS - PU01



8. EXPLODED VIEWS AND PARTS LIST

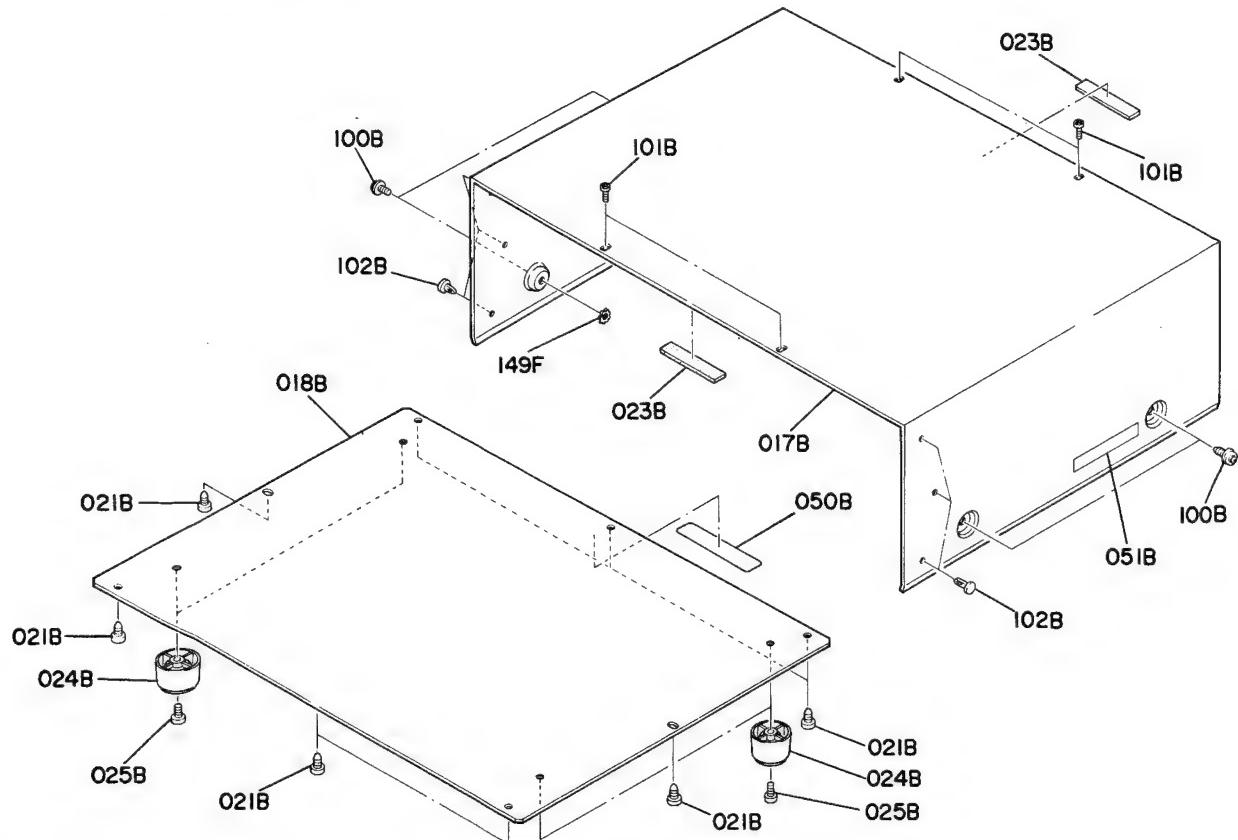
8.1 [C01-99] FRONT PANEL



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
A	1	2475063400	Front Panel Assembly
002B	1	2475063010	Escutcheon, Main
003B	1	2475063020	Escutcheon, Sub
004B	1	2286158020	Window, Dial
005B	1	2286158010	Window, Scope
006B	8	51480306A9	F. Washer Screw F3 x 6
007B	3	5157030589	P. TAPT. Screw P3 x 5
010B	7	2978259012	Bushing
011B	3	2279259013	Bushing
012B	3	2979115012	Spring
013B	3	2979259022	Bushing
014B	3	64020600Q0	RG Ring, CS Type
032B	3	2979154022	Knob, AM/FM

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
008B	4	52017069J0	H. Head Bolt
031B	3	2286154012	Knob, Scope VR.

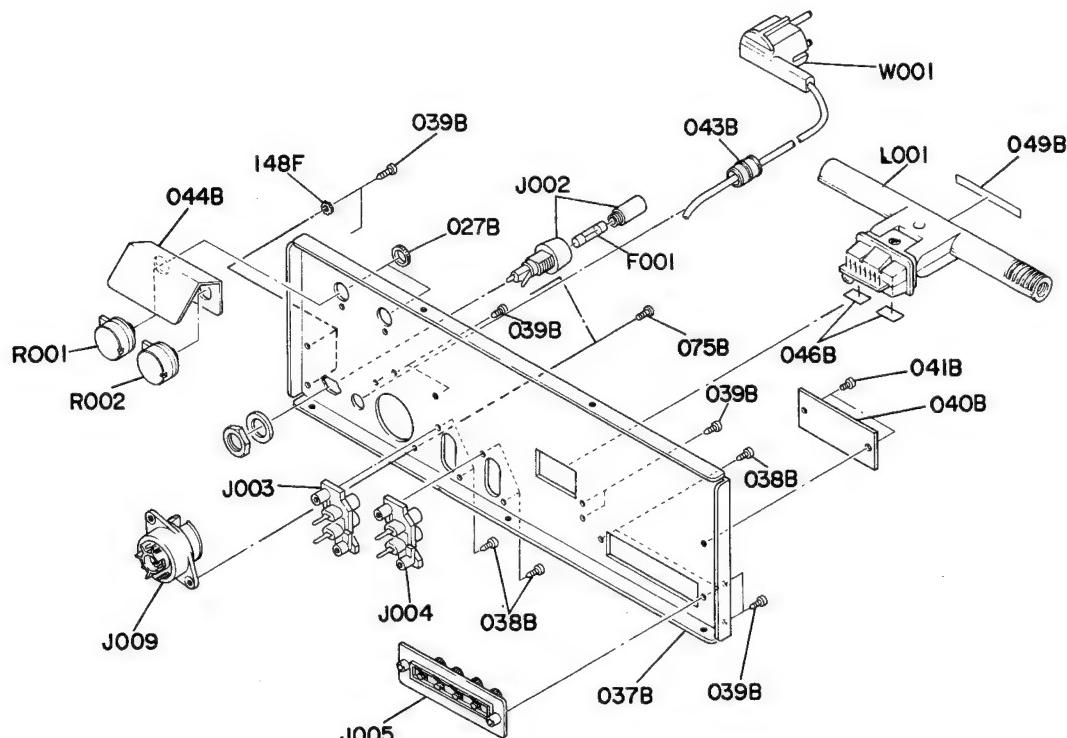
8.2 [C02-99] TOP COVER



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
017B	1	2216257112	Lid, Top Cover
018B	1	2216257022	Lid, Bottom Cover
021B	8	51280410U0	B.H. Tapped Screw B4 x 10
023B	2	2965118010	Spacer
024B	4	2932057010	Leg
025B	4	51570410SO	P. TAPT Screw P4 x 10

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
050B	1	2578861010	Label
051B	1	2932861012	Label
100B	4	51480406S9	F. Washer Screw F4 x 6
101B	4	51280306U0	B.H. Tapped Screw B3 x 6
102B	6	2991259010	Bushing
149F	1	54050400R0	T.L. Washer OR

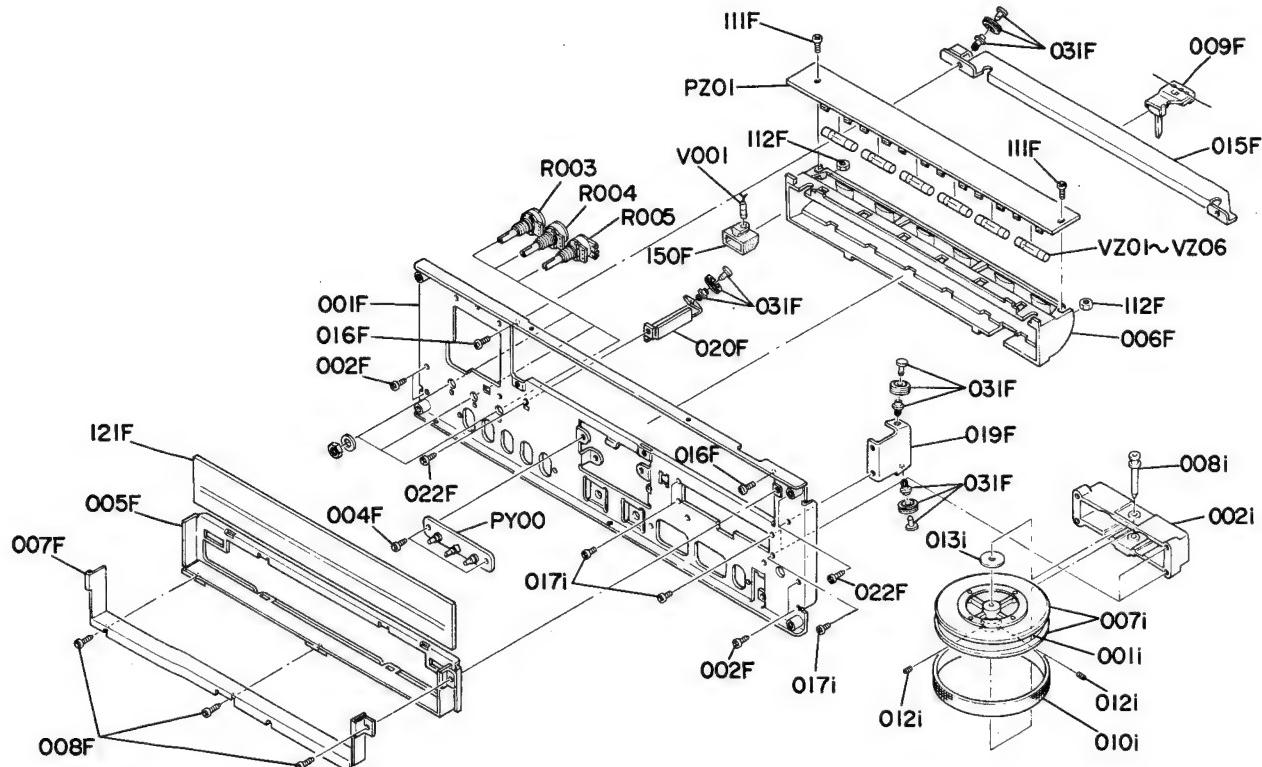
8.3 [C03-99] REAR PANEL



REF. DESIG.	Q'TY		PART NO.	DESCRIPTION	
	N				
027B	2	53228059E0	S.C. Nut		
037B	1	2285160223	Bracket, Rear Panel		
038B	6	51280308U0	B.H. Tapped Screw	B3 x 8	
039B	8	51280308U0	B.H. Tapped Screw	B3 x 8	
040B	1	2475265010	Indicator		
041B	2	51760306B0	OS Tapped Screw	3 x 6	
043B	1	2286259110	Bushing		
044B	1	2286120020	Insulator		
046B	2	2475107010	Sheet		
049B	1	2506265060	Label		
075B	2	51100308S9	B.H.M. Screw	B3 x 8	
148F	1	54050300R0	T.L. Washer, OR		

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION		
J002	1	YJ08000220	Jack, Fuse Holder		
J003	1	YT02020140	Terminal, Output		
J004	1	YT02020140	Terminal, Scope In		
J005	1	YT01040182	Terminal, Ant.		
J009	1	BY03110010	Plug, Voltage Selector		
F001	1	FS10063800	Fuse	630mA T	250V
L001	1	LF11400910	Ant Coil, LW MW Bar Ant.		
R001	1	RA05030180	Triming Resistor	50KΩ (B)	
R002	1	RK02040060	Variable Resistor	200KΩ (B)	
W001	1	YC01900030	A.C. Power Cord		

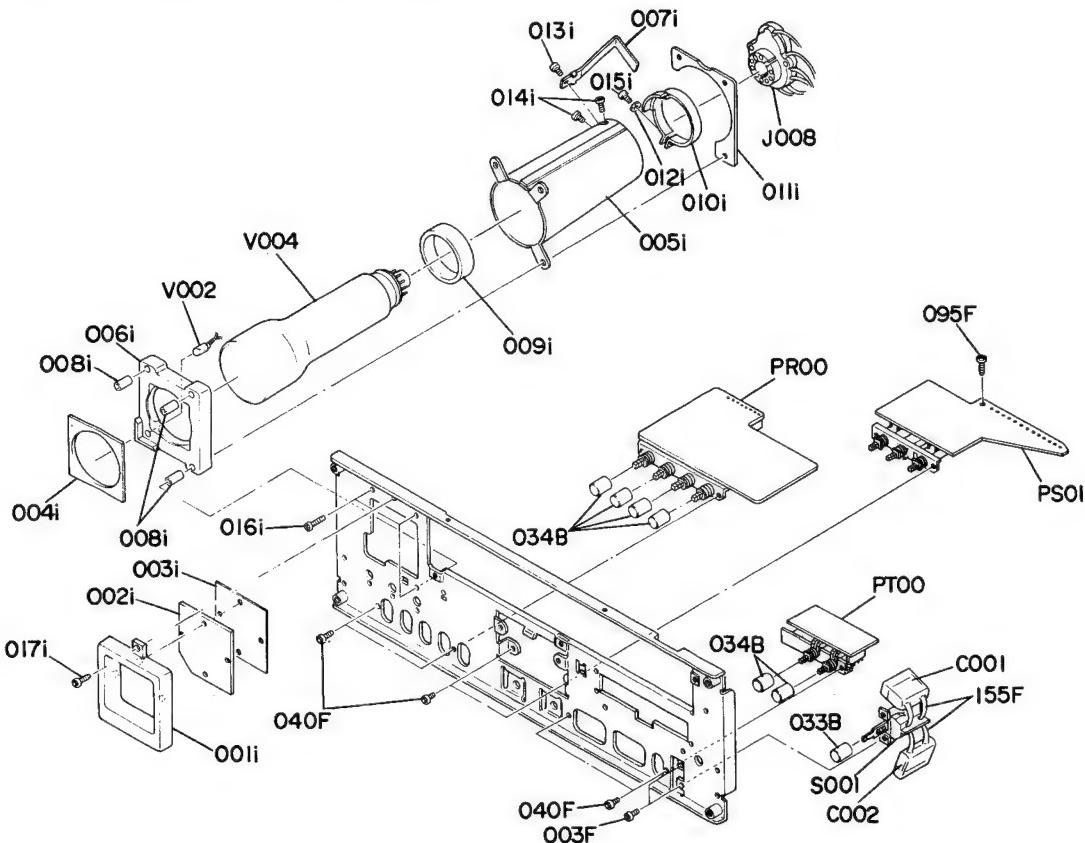
8.4 [P01-99] FRONT CHASSIS AND GENERAL PARTS



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
D	1	2219273420	Flywheel Assembly
001i	1	2219273012	Flywheel
007i	2	2219063030	Escutcheon
010i	1	2115353010	Ring
012i	2	51690306Q9	Socket Screw, HP 3 x 6
002i	1	2219104502	Retainer, K
008i	1	2219112012	Shaft
013i	1	59031405G9	Washer
017i	4	51280308B0	B.H. Tapped Screw B3 x 8
001F	1	2285160012	Bracket
002F	4	51280306B0	B.H. Tapped Screw B3 x 6
004F	2	51280306B0	B.H. Tapped Screw B3 x 6
005F	1	2218271013	Holder
006F	1	2218274013	Reflector
007F	1	2219053022	Cover
008F	3	51280306B0	B.H. Tapped Screw B3 x 6
009F	1	2991103500	Pointer, K
015F	1	2286051010	Guide
016F	2	51100306A9	B.H.M. Screw B3 x 6
019F	1	2285271010	Holder
020F	1	2286271020	Holder
022F	3	51100306A9	B.H.M. Screw B3 x 6
031F	4	2286262500	Pulley, K

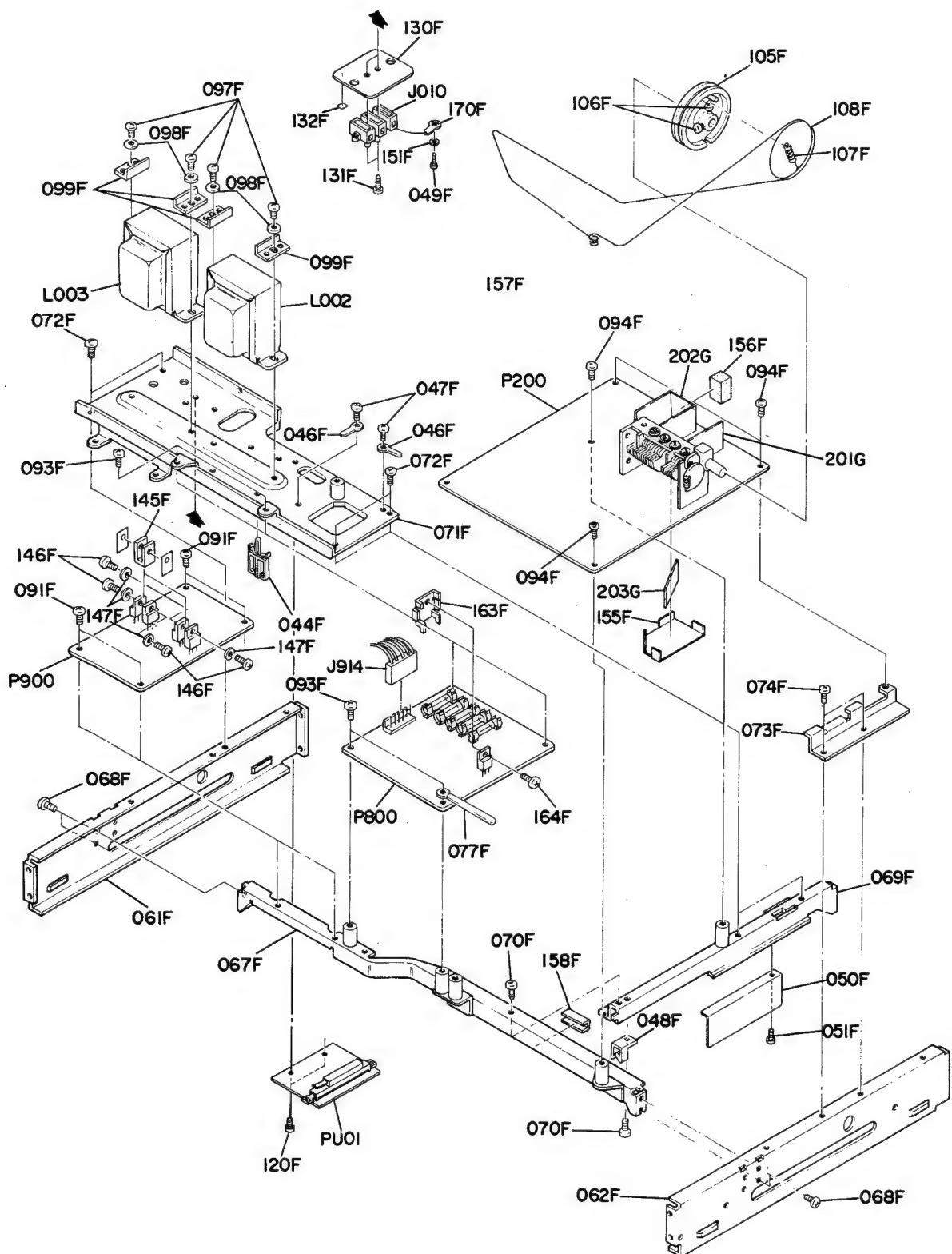
REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
111F	2	51100308A9	B.H.M. Screw Hexagon Nut B3 x 8
112F	2	53110303E9	Hexagon Nut
121F	1	2475302010	Dial
150F	1	2218274033	Reflector
R003	1	RB01030240	Variable Resistor 10KΩ (B)
R004	1	RB01030240	Variable Resistor 10KΩ (B)
R005	1	RM02540440	Variable Resistor 250KΩ
V001	1	IN10080340	Lamp, Stereo 60mA 8V
PY00	1	YK22861220	P.W. Board, L.E.D.
	1	ZZ24758220	P.W. Board Assembly
PZ01	1	YF22860020	P.W. Board, Dial Illuminator
	1	ZZ22861020	P.W. Board Assembly
VZ01	1	IN10080070	Dial Lamp 0.2A 8V
VZ06	6		

8.5 [P02-99] SCOPE DIAL ASSEMBLY AND P.W. BOARDS



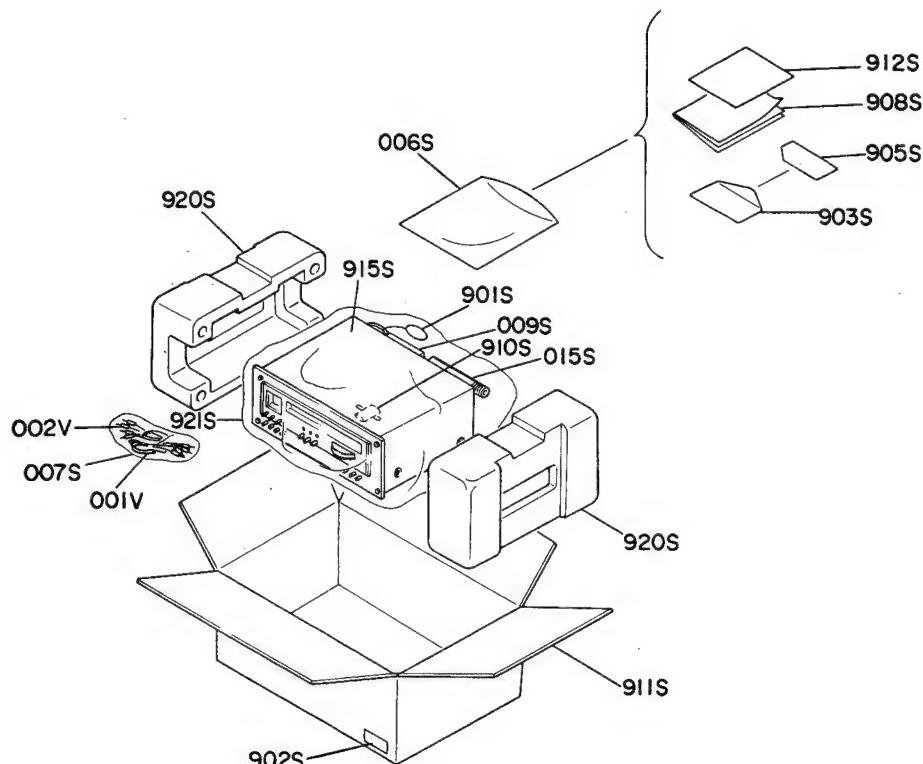
REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION	REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
033B	1	2963154022	Knob	D	1	2286302400	Scope Dial Assembly
034B	6	2970154032	Knob	002i	1	2286302030	Dial
				003i	1	2286303010	Mask
				004i	1	2286053030	Cover
003F	2	51100306A9	B.H.M. Screw B3 x 6	001i	1	2286401010	Frame
040F	6	51100306A9	B.H.M. Screw B3 x 6	005i	1	2219109012	Shield
095F	1	5128030880	B.H. Tapped Screw B3 x 8	006i	1	2219357012	Rod., Scope Pade
155F	2	3926120010	Insulator	007i	1	2286005012	Clamper
C001	1	DF17223800	Film Cap. 0.022μF 1000V	008i	3	2219055020	Collar
C002	1	DF17223800	Film Cap. 0.022μF 1000V	009i	1	2904056022	Buffer
S001	1	SP02010300	Push Switch, Power	010i	1	2904005030	Clamper
PROO	1	YK22861210	P.W. Board, Scope Switch	011i	1	2207005010	Clamper
	1	ZZ22852210	P.W. Board Assembly	012i	1	54020301S0	Flat Washer, P.
PS01	1	YH24751210	P.W. Board Function Switch	013i	1	51100308S9	B.H.M. Screw B3 x 8
	1	ZZ24751210	P.W. Board Assembly	014i	2	51100304S9	B.H.M. Screw B3 x 4
PT00	1	YH24751220	P.W. Board, Mode Switch	015i	1	51100305S9	B.H.M. Screw B3 x 5
	1	ZZ24751220	P.W. Board Assembly	016i	3	51100316S9	B.H.M. Screw B3 x 16
				017i	1	51280306B0	B.H. Tapped Screw B3 x 6
				J008	1	YJ05000182	Jack, CRT Socket
				V002	1	IN10080340	Lamp, 60mA 8V
				V004	1	VB00235012	Picture Tube

8.6 [P03-99] MAIN CHASSIS AND P.W. BOARDS



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION	REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
B	1	2258159400	Drum Assembly	201G	1	2259109040	Shield
105F	1	2219159010	Drum	202G	1	2259109053	Shield
106F	2	51064019A9	P.H.M. Screw	203G	1	2259109062	Shield
107F	1	71101689L0	Spring	J010	1	YL09030010	Terminal
044F	2	2886005060	Clamper	J914	1	YJ06001310	Jack (6P)
046F	2	62030049W0	Lug	L002	1	TS15713020	Power Transformer
047F	2	51280306B0	B.H. Tapped Screw	L003	1	TS15713050	Power Transformer
048F	1	2887005110	B.H. Tapped Screw	P200	1	YG22850010	P.W. Board, Tuner MPX
049F	1	51280306B0	B.H. Tapped Screw		1	ZZ24758010	P.W. Board Assembly
050F	1	2475271010	Holder	P800	1	YF22850020	P.W. Board, Power Supply
051F	1	51280308B0	B.H. Tapped Screw		1	ZZ22858020	P.W. Board, Assembly
061F	1	2216105023	Chassis (L)	P900	1	YK22190310	P.W. Board, Scope Amp.
062F	1	2216105033	Chassis (R)		1	ZZ22860310	P.W. Board Assembly
067F	1	2285126012	Stay, Front	PU01	1	YF24750010	P.W. Board, Function
068F	4	51280306B0	B.H. Tapped Screw		1	ZZ24750010	P.W. Board Assembly
069F	1	2285126030	Stay, Main				
070F	2	51280306B0	B.H. Tapped Screw				
071F	1	2475105010	Chassis, Main				
072F	4	51280306B0	B.H. Tapped Screw				
073F	1	2285126020	Stay, Side				
074F	2	51280306B0	B.H. Tapped Screw				
077F	1	2871005010	Clamper				
091F	4	51280306B0	B.H. Tapped Screw				
093F	4	51280306B0	B.H. Tapped Screw				
094F	4	51280306B0	B.H. Tapped Screw				
097F	4	51470408A9	L. Washer Screw				
098F	4	54040402A0	Spring Washer				
099F	4	2896104010	Retainer				
108F	1	72071605A0	String (150)				
120F	2	51280306B0	B.H. Tapped Screw				
130F	1	3953120030	Insulator				
131F	2	51280314B0	B.H. Tapped Screw				
132F	1	2882861020	Label				
145F	2	2219267040	Heatsink				
146F	4	50020305B9	Screw				
147F	4	54040302A0	Spring Washer				
151F	1	54040302A0	Spring Washer				
155F	1	2285109050	Shield				
156F	1	3918104010	Retainer				
157F	1	2205861010	Label				
158F	1	4640259010	Bushing				
163F	1	2963267020	Heatsink				
164F	1	51280306B0	B.H. Tapped Screw				
170F	1	62030049W0	Lug				

8.7 [H01-99] PACKING MATERIALS



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
006S	1	9013025010	Polyethy Bag
007S	1	9011325010	Polyethy Bag
009S	1	2864804010	Sleeve
015S	1	2819056010	Buffer
901S	1	9560000043	Hang Tag
902S	2	9526019060	Serial No. Card
903S	1	2818813010	Envelope
905S	1	9630000180	Guarantee Card
908S	1	2475851310	Instructions

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
910S	1	2731821010	Silicagel
911S	1	2475801010	Packing Case
912S	1	2475851030	Instructions
915S	1	2918107170	Sheet
920S	2	2965809012	Cushion
921S	1	9014335330	Polyethy Bag
001V	1	ZA02000070	EXT. Antenna, FM
002V	1	ZD01500160	Connective Cord

8.8 ELECTRICAL PARTS LIST

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION			REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION		
P200	1	YG22850010	P200-TUNER MPX CIRCUIT BOARD P.W. Board, Tuner MPX			C213	1	DK18403320	Ceramic	0.04μF	+80% -20%
	1	ZZ24758010	P.W. Board Assembly			C214	1	EA10601690	Elect	10μF	16V
C101	1	DD15200300	P200-CAPACITORS Ceramic 20pF ± 5%			C215	1	EA47405090	Elect	0.47μF	50V
C102	1	DK18103320	Ceramic 0.01μF +80% - 20%			C216	1	DD15101370	Ceramic	100pF	±5%
C103	1	DK18103320	Ceramic 0.01μF +80% - 20%			C217	1	EA10601690	Elect	10μF	16V
C104	1	DK18223320	Ceramic 0.022μF +80% - 20%			C218	1	EA47503590	Elect	4.7μF	35V
C105	1	DD15150300	Ceramic 15pF ± 5%			C219	1	EA10601690	Elect	10μF	16V
C106	1	DD10050300	Ceramic 5pF ± 0.25pF			C220	1	DK18403320	Ceramic	0.04μF	+100% -0
C107	1	DD10050370	Ceramic 5pF ± 0.25pF			C221	1	EA10701690	Elect	100μF	16V
C108	1	DD15301360	Ceramic 300pF ± 5%			C222	1	EA10505090	Elect	1μF	50V
C109	1	DK18223320	Ceramic 0.022pF +80% - 20%			C223	1	DK18403320	Ceramic	0.04μF	+100% -0
C110	1	DD10020300	Ceramic 2pF ± 0.25pF			C224	1	DK18403320	Ceramic	0.04μF	+100% -0
C111	1	DD15200350	Ceramic 20pF ± 5%			C225	1	EA10505090	Elect	1μF	50V
C112	1	DD11100300	Ceramic 10pF ± 0.5pF			C226	1	EA10601690	Elect	10μF	16V
C113	1	DD15150300	Ceramic 15pF ± 5%			C227	1	DF15102300	Film	0.001μF	±5%
C114	1	DD15150300	Ceramic 15pF ± 5%			C301	1	DF55102090	Film	0.001μF	±5%
C115	1	DK18223320	Ceramic 0.022μF +80% - 20%			C302	1	DF16222300	Film	2200pF	±10%
C116	1	DK18223320	Ceramic 0.022μF +80% - 20%			C303	1	EA33502590	Elect	3.3μF	25V
C118	1	EV33403560	Elect 0.33μF 35V			C304	1	EQ47405010	Elect	0.47μF	50V
C119	1	DK18223320	Ceramic 0.022μF			C305	1	EA33502590	Elect	3.3μF	25V
C120	1	CA32200050	Variable			C306	1	EV33403560	Elect	0.33μF	35V
C121	1	CT11000080	Trimming 10pF ± 0.5pF			C307	1	DF17473010	Film	0.047μF	±20%
C122	1	DK18403320	Ceramic 0.04μF +100% -0			C308	1	DF15103300	Film	0.01μF	±5%
C123	1	DD10020370	Ceramic 2pF ± 0.25pF			C309	1	EV33403560	Elect	0.33μF	35V
C151	1	DK18223320	Ceramic 0.022μF +80% - 20%			C311	1	EA10601690	Elect	10μF	16V
C152	1	EA10601690	Elect 10μF 16V			C312	1	EA10601690	Elect	10μF	16V
C153	1	DF17102300	Film 0.001μF ± 20%			C313	1	EA10701690	Elect	100μF	16V
C154	1	EA47503590	Elect 4.7μF 35V			C314	1	EA22505090	Elect	2.2μF	50V
C155	1	DF17103300	Film 0.01μF ± 20%			C315	1	EA22505090	Elect	2.2μF	50V
C156	1	DF17563300	Film 0.056μF ± 20%			C316	1	DF15222300	Film	0.002μF	±5%
C157	1	DF17103300	Film 0.01μF ± 20%			C317	1	DF15222300	Film	0.002μF	±5%
C158	1	DK17103300	Ceramic 0.01μF ± 20%			C318	1	EA47503590	Elect	4.7μF	35V
C159	1	DK17103300	Ceramic 0.01μF ± 20%			C319	1	EA47503590	Elect	4.7μF	35V
C161	1	DK17103300	Ceramic 0.01μF ± 20%			C320	1	EV33403560	Elect	0.33μF	35V
C163	1	DK18223320	Ceramic 0.022μF +80% - 20%			C321	1	EV33403560	Elect	0.33μF	35V
C164	1	EA47601690	Elect 47μF 16V			C322	1	EA10601690	Elect	10μF	16V
C165	1	DF17102300	Film 0.001μF ± 20%			C323	1	EA10601690	Elect	10μF	16V
C166	1	DK17103300	Ceramic 0.01μF ± 20%			C324	1	DF15152300	Film	1500pF	±5%
C167	1	DF17222300	Film 2200pF ± 20%			C326	1	EA47503590	Elect	4.7μF	35V
C201	1	DK18223320	Ceramic 0.022μF +80% - 20%			C327	1	EA22701690	Elect	220μF	16V
C202	1	DK18103320	Ceramic 0.01μF +80% - 20%								
C203	1	DK18223320	Ceramic 0.022μF +80% - 20%								
C204	1	EA47405090	Elect 0.47μF 50V								
C206	1	DK18403320	Ceramic 0.04μF +80% - 20%								
C207	1	DK18403320	Ceramic 0.04μF +80% - 20%								
C208	1	DK18403320	Ceramic 0.04μF +80% - 20%								
C209	1	DK18403320	Ceramic 0.04μF +80% - 20%								
C210	1	DK18403320	Ceramic 0.04μF +80% - 20%								
C211	1	DK18403320	Ceramic 0.04μF +80% - 20%								
C212	1	DK18403320	Ceramic 0.04μF +80% - 20%								

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
P200-RESISTORS (All Resistors are $\pm 5\%$ and $\frac{1}{4}W$)			
R101	1	GD05105140	1M Ω
R102	1	GD05101140	100 Ω
R103	1	GD05101140	100 Ω
R104	1	GD05101140	100 Ω
R105	1	GD05223140	22K Ω
R106	1	GD05472140	4.7K Ω
R107	1	GD05102140	1K Ω
R108	1	GD05273140	27K Ω
R109	1	GD05103140	10K Ω
R110	1	GD05222140	2.2K Ω
R111	1	GD05103140	10K Ω
R112	1	GD05101140	100 Ω
R113	1	GD05104140	100K Ω
R114	1	GD05221140	220 Ω
R151	1	RA05030090	Trimming 50K Ω (B)
R152	1	GD05102140	1K Ω
R153	1	GD05103140	10K Ω
R154	1	GD05103140	10K Ω
R155	1	GD05102140	1K Ω
R156	1	GD05223140	22K Ω
R157	1	GD05301140	300 Ω
R158	1	GD05151140	150 Ω
R159	1	GD05152140	1.5K Ω
R161	1	GD05201140	200 Ω
R162	1	GD05473140	47K Ω
R164	1	GD05471140	470 Ω
R202	1	GD05331140	330 Ω
R203	1	GD05272140	2.7K Ω
R204	1	GD05153140	15K Ω
R205	1	GD05391140	390 Ω
R206	1	GD05331140	330 Ω
R208	1	GD05222140	2.2K Ω
R209	1	RA05030090	Trimming 50K Ω (B)
R210	1	GD05333140	33K Ω
R211	1	GD05103140	10K Ω
R212	1	RA05020160	Trimming 5K Ω
R214	1	GD05183140	18K Ω
R215	1	GD05331140	330 Ω
R216	1	RA05030090	Trimming 50K Ω (B)
R217	1	GD05471140	470 Ω
R218	1	GD05133140	13K Ω
R220	1	GD05184140	180K Ω
R221	1	GD05104140	100K Ω
R222	1	GD05152140	1.5K Ω
R223	1	GD05272140	2.7K Ω
R224	1	GD05182140	1.8K Ω
R225	1	GD05105140	1M Ω
R226	1	GD05334140	330K Ω
R227	1	RA01050090	Trimming 1M Ω (B)
R228	1	GD05105140	1M Ω
R229	1	GD05105140	1M Ω

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
R230	1	GD05104140	100K Ω
R231	1	GD05224140	220K Ω
R232	1	GD05473140	47K Ω
R233	1	GD05563140	56K Ω
R235	1	GD05333140	33K Ω
R236	1	GD05223140	22K Ω
R238	1	GD05152140	1.5K Ω
R301	1	GD05224140	220K Ω
R302	1	GD05272140	2.7K Ω
R303	1	GD05562140	5.6K Ω
R304	1	RA04720050	Trimming 4.7K Ω (B)
R305	1	GD05333140	33K Ω
R306	1	GD05224140	220K Ω
R307	1	RA01040110	Trimming 100K Ω (B)
R308	1	GD05333140	33K Ω
R309	1	GD05102140	1K Ω
R311	1	GD05472140	4.7K Ω
R312	1	GD05472140	4.7K Ω
R313	1	GD05472140	4.7K Ω
R314	1	GD05273140	27K Ω
R315	1	GD05472140	4.7K Ω
R316	1	GD05472140	4.7K Ω
R317	1	GD05273140	27K Ω
R318	1	GD05105140	1M Ω
R319	1	GD05105140	1M Ω
R320	1	GD05184140	180K Ω
R321	1	GD05184140	180K Ω
R322	1	GD05391140	390 Ω
R323	1	GD05391140	390 Ω
R324	1	GD05683140	68K Ω
R325	1	GD05683140	68K Ω
R326	1	GD05753140	75K Ω
R327	1	GD05753140	75K Ω
R328	1	GD05473140	47K Ω
R329	1	GD05473140	47K Ω
R330	1	GD05222140	2.2K Ω
R331	1	GD05222140	2.2K Ω
R332	1	GD05473140	47K Ω
R333	1	GD05473140	47K Ω
R334	1	GD05102140	1K Ω
R335	1	GD05102140	1K Ω
R336	1	RA02030060	Trimming 20K Ω (B)
R337	1	GD05153140	15K Ω
R338	1	GG05220140	22 Ω
R339	1	GD05102140	1K Ω
R340	1	GD05472140	4.7K Ω
R341	1	GD05474140	470K Ω
R342	1	GD05474140	470K Ω
R343	1	GD05304140	300K Ω
R344	1	GD05223140	22K Ω

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
Q101	1	HF400451B0	P200-SEMICONDUCTORS
Q102	1	HT310471C0	F.E.T. 3SK45B
Q103	1	HT308291C0	Transistor 2SC1047 (C)
Q104	1	HC10019010	Transistor 2SC829 (C)
Q151	1	HC10019010	IC HA1197
Q152	1	HV00006120	Varistor MV-203
Q201	1	HT310471C0	Transistor
Q202	1	HC10033010	IC HA11225
Q203	1	HT309452A0	Transistor 2SC945 (P or Q)
Q204	1	HD20011050	Diode 1S1555
Q205	1	HD20011050	Diode 1S1555
Q206	1	HC10019060	IC μ PC741C
Q207	1	HV00006120	Varistor MV-203
Q301	1	HT309452A0	Transistor 2SC945 (P or Q)
Q302	1	HC10029010	IC HA11223
Q303	1	HT317400S0	Transistor 2SC1740LN (S)
Q304	1	HT317400S0	Transistor 2SC1740LN (S)
Q305	1	HT309452A0	Transistor 2SC945 (P or Q)
Q306	1	HT309452A0	Transistor 2SC945 (P or Q)
Q307	1	HT317400S0	Transistor 2SC1740LN (S)
Q308	1	HT317400S0	Transistor 2SC1740LN (S)
Q309	1	HD30033090	Zener WZ052
P200-FILTERS			
F151	1	FF10045190	Ceramic 455kHz
F201	1	FF11070050	Ceramic 10.7MD1
F202	1	FF11070050	Ceramic 10.7MD1
F203	1	FF11070050	Ceramic 10.7MD1
P200-COILS			
L101	1	LA12026170	Ant Coil FM
L102	1	LA12026180	Ant Coil FM
L103	1	LC17510010	Choke Coil 0.75 μ H
L104	1	L110016010	I.F.T. FM
L105	1	LO12046010	OSC Coil FM
L106	1	LC13320020	Choke Coil 3.3 μ H
L151	1	L110015060	I.F.T. AM
L152	1	L110010720	I.F.T. AM
L154	1	LC13320020	Choke Coil 3.3 μ H
L155	1	LC13320020	Choke Coil 3.3 μ H
L156	1	LO10010420	OSC Coil
L201	1	L110156240	I.F.T. FM
L202	1	L110156230	I.F.T. FM
L203	1	LC12230050	Choke Coil 22 μ H
L204	1	LC13320020	Choke Coil 3.3 μ H
L301	1	LS20010010	M.P.X. Coil
L302	1	LS20010010	M.P.X. Coil

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
P800	1	YF22850020	P800-POWER SUPPLY CIRCUIT BOARD
	1	ZZ22858020	P.W. Board, Power Supply
			P.W. Board Assembly
P800-CAPACITORS			
C802	1	EA47701690	Elect 470 μ F 16V
C803	1	EA47702590	Elect 470 μ F 25V
C804	1	DK18103510	Ceramic 0.01 μ F
C805	1	DK18103510	Ceramic 0.01 μ F
C806	1	EA47702590	Elect 470 μ F 25V
C807	1	EA22802590	Elect 2200 μ F 25V
C808	1	EA47702590	Elect 470 μ F 25V
C809	1	EA10625010	Elect 10 μ F 250V
C810	1	EA10625010	Elect 10 μ F 250V
C811	1	EA10635010	Elect 10 μ F 350V
C812	1	EA10635010	Elect 10 μ F 350V
C813	1	EA10702590	Elect 100 μ F 25V
C814	1	EA10701690	Elect 100 μ F 16V
C815	1	EQ10505010	Elect 1 μ F 50V
C816	1	EA47503590	Elect 4.7 μ F 35V
P800-RESISTORS (All Resistors are $\pm 5\%$ and $\frac{1}{4}W$)			
R801	1	GD05562140	5.6K Ω
R802	1	GD05104140	100K Ω
R803	1	GD05103140	10K Ω
R805	1	GG05331140	330 Ω
R806	1	GG05221140	220 Ω
R807	1	GW10822030	8.2K Ω $\pm 10\%$ $\frac{1}{2}W$
R808	1	GG05301120	300 Ω
R809	1	GG05472140	4.7K Ω
R810	1	GD05103140	10K Ω
R811	1	GD05154140	150K Ω
R812	1	GD05123140	12K Ω
R813	1	GD05684140	680K Ω
R814	1	GD05100140	10 Ω
R815	1	GD05153140	15K Ω
R816	1	GD05102140	1K Ω
R817	1	GD05104140	100K Ω
R818	1	GA05330010	33 Ω 1W
R819	1	GA05301010	300 Ω 1W
R820	1	GD05473140	47K Ω
R821	1	RF05100140	Fusible 10 Ω

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
			P800-SEMICONDUCTORS
Q801	1	HT309452A0	Transistor 2SC945 (Q or R)
Q802	1	HT309452A0	Transistor 2SC945 (Q or R)
Q803	1	HT403132A0	Transistor 2SD313 (D or E)
Q804	1	HD30027090	Zener WZ140
Q805	1	HD20005010	Diode W06B
Q806	1	HD20005010	Diode W06B
Q807	1	HD20014030	Diode DS130YA
Q808	1	HD20014030	Diode DS130YA
Q809	1	HD20021100	Diode 2DL15
Q810	1	HD30027090	Zener WZ140
Q811	1	HD20011050	Diode 1S1555
Q812	1	HD20011050	Diode 1S1555
Q813	1	HT309452A0	Transistor 2SC945 (Q or R)
Q814	1	HT309452A0	Transistor 2SC945 (Q or R)
Q815	1	HD20011050	Diode 1S1555
			P800-MISCELLANEOUS
F801	1	FS10125800	Fuse 1.25AT
F802	1	FS30500010	Fuse 50mAT
F803	1	FS30500010	Fuse 50mAT
F804	1	FS30500010	Fuse 50mAT
F805	1	FS10031800	Fuse 315mAT
J801	?	YJ08000270	Jack, Fuse Holder
J810			
J821	1	YPO6001310	Plug (6P)
			P900-SCOPE AMP. CIRCUIT BOARD
P900	1	YK22190310	P.W. Board, Scope Amp.
	1	ZZ22860310	P.W. Board Assembly
			P900-CAPACITORS
C901	1	DK18103820	Ceramic 0.01μF 1KV
C902	1	DK18103820	Ceramic 0.01μF 1KV
C903	1	DF17473520	Film 0.047μF ±20% 200V
			P900-RESISTORS
			(All Resistors are ±5% and 1/4W)
R901	1	RT05224140	220KΩ
R902	1	RT05224140	220KΩ
R903	1	RT05224140	220KΩ
R904	1	RT05224140	220KΩ
R905	1	RT05682140	6.8KΩ
R906	1	RT05682140	6.8KΩ
R907	1	RT05222140	2.2KΩ
R908	1	RT05222140	2.2KΩ
R909	1	RT05103140	10KΩ
R910	1	RT05103140	10KΩ

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
R911	1	RT05103140	10KΩ
R912	1	RT05103140	10KΩ
R913	1	RT05683140	68KΩ
R914	1	RT05683140	68KΩ
R915	1	RT05623140	62KΩ
R916	1	RT05623140	62KΩ
R917	1	RT05823140	82KΩ
R918	1	RT05204140	200KΩ
R919	1	RT05105140	1MΩ
R920	1	RT05105140	1MΩ
R921	1	RT05224140	220KΩ
R922	1	RT05155140	1.5MΩ
R923	1	RT05153140	15KΩ
R924	1	RT05473140	47KΩ
R925	1	RA01030250	Trimming 10KΩ
R926	1	RA01030250	Trimming 10KΩ
R927	1	RA01020150	Trimming 1KΩ
R928	1	RA01020150	Trimming 1KΩ
R929	1	RT05204140	200KΩ
R930	1	RT05152140	1.5KΩ
R931	1	RA01030070	Trimming 10KΩ
R932	1	RT05473140	47KΩ
			P900-SEMICONDUCTORS
			F.E.T. 2SK30A
			Transistor 2SC1756 (D or E)
			Transistor 2SC1756 (D or E)
			Transistor 2SC1756 (D or E)
			Transistor 2SC1756 (D or E)
			Diode 1S2471
			Diode 1S2471
			Diode 1S2473
			P900-MISCELLANEOUS
			Plug (8P)
			Plug (5P)
			Plug (5P)
			Connective Cord
			Jack (6P)

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
PR00	1	YK22861210	PR00-SCOPE SWITCH CIRCUIT BOARD P.W. Board, Scope Switch P.W. Board Assembly
	1	ZZ22852210	
CR01	1	DF17473050	PR00-CAPACITORS
CR02	1	EV22403560	Film 0.047μF ±20%
CR03	1	EV22403560	Elect 0.22μF 35V
CR04	1	EV22403560	Elect 0.22μF 35V
CR05	1	DK18223320	Elect 0.22μF 35V
			Ceramic 0.022μF +100%—0
RR01	1	GG05221140	PR00-RESISTORS (All Resistors are ±5% and 1/4W)
RR02	1	GA05181010	220Ω
RR03	1	GD05473140	180Ω 1W
RR04	1	GD05473140	47KΩ
RR05	1	GD05394140	47KΩ
RR06	1	GD05183140	390KΩ
RR07	1	GD05473140	18KΩ
RR08	1	GD05273140	47KΩ
RR09	1	GD05473140	27KΩ
RR10	1	GD05183140	47KΩ
RR11	1	GD05103104	18KΩ
RR12	1	GD05103104	10KΩ
RR13	1	GD05473140	47KΩ
JR01	1	YJ06001330	PR00-MISCELLANEOUS
SR01	1	SP04040200	Jack, (8P) Push Switch, Scope
PS01	1	YH24751210	PS00-FUNCTION SWITCH CIRCUIT BOARD
	1	ZZ24751210	P.W. Board, Function Switch P.W. Board Assembly
SS01	1	SP08030080	PT00-MODE SWITCH CIRCUIT BOARD
SS02	1	SP08030090	Push Switch
SS03	1	SS07020030	Push Switch
SS04	1	SB11440010	Slide Switch
			Switch Band
PT00	1	YH24751220	
	1	ZZ24758220	P.W. Board, Mode Switch P.W. Board Assembly
QT01	1	HD20011050	PT00-SEMICONDUCTOR
			Diode 1S1555
ST00	1	SP02020433	PT00-SWITCH
			Push Switch, Mode

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
PU01	1	YF24750010	PU01-FUNCTION CIRCUIT BOARD
	1	ZZ24750010	P.W. Board, Function P.W. Board Assembly
CU01	1	CT11000010	PU01-CAPACITORS
CU02	1	CT15000010	Trimming 10pF
CU03	1	DD16680010	Trimming 50pF
CU04	1	CT15000010	Ceramic 68pF ±10%
CU05	1	DF66181500	Trimming 50pF
CU06	1	CT11000010	Film 180pF ±10%
CU07	1	DF65391010	Trimming 10pF
CU08	1	DD12100010	Film 390pF ±5%
			Ceramic 10pF ±1pF
LU01	1	LO10010520	PU01-COILS
LU02	1	LO10010480	OSC Coil (LW) OSC Coil (MW)
PY00	1	YK22861220	PY00-LED CIRCUIT BOARD
	1	ZZ24758220	P.W. Board, LED P.W. Board Assembly
RY01	1	GD05122140	PY00-RESISTORS
RY02	1	GD05122140	1.2KΩ ±5% 1/4W
RY03	1	GD05122140	1.2KΩ ±5% 1/4W
			1.2KΩ ±5% 1/4W
QY01	1	HI10004030	PY00-SEMICONDUCTORS
QY02	1	HI10004030	L.E.D.
QY03	1	HI10004030	L.E.D.
			L.E.D.
PZ01	1	YF22860020	PZ01-DIAL ILLUMINATOR CIRCUIT BOARD
	1	ZZ22861020	P.W. Board, Dial Illuminator P.W. Board Assembly
JZ03	12	YJ08000170	Jack, Lamp Holder
VZ01	6	IN10080070	Dial Lamp 0.2A 8V
VZ06			

(W01-99)	Assembly and Wiring
(T01-99)	Adjustment
(X01-00)	Correction

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9. TECHNICAL SPECIFICATIONS

FM TUNER SECTION

Frequency Range	87.5~108 MHz
Usable Sensitivity 40 kHz Deviation, 98 MHz	
Mono, S/N 26 dB	1.4 μ V
Stereo, S/N 46 dB	45 μ V
Alternate Channel Selectivity, 98 MHz \pm 300 kHz	75 dB
Image Response Rejection, 98 MHz	60 dB
IF Rejection, 98 MHz	98 dB
Spurious Response Rejection, 98 MHz	98 dB
AM Suppression, 98 MHz	59 dB
Signal-to-Noise Ratio, 98 MHz	
Unweighted: Mono	65 dB
Stereo	60 dB
Weighted: Mono	68 dB
Stereo	64 dB
Pilot Signal & Subcarrier Rejection	
19 kHz	68 dB
38 kHz	74 dB
Total Harmonic Distortion, 98 MHz	
Mono	0.06%
Stereo	0.17%
Frequency Response	
30 Hz~15 kHz	+0, -0.4 dB
Separation	
Stereo	55 dB
Channel Balance	0.3 dB
Output Voltage, 1 kHz	560 mV
Output Impedance, 1 kHz	1.0 kohms
Acceptable Load Impedance, 1 kHz	10 kohms
Antenna Terminals	
Balanced	300 ohms
Unbalanced	75 ohms

MW TUNER SECTION

Frequency Range	515~1650 kHz
Usable Sensitivity (26 dB S/N 30% Mod., 1 MHz)	25 μ V
Selectivity, 1 MHz \pm 9 kHz	46 dB
Image Rejection, 1 MHz	50 dB
IF Rejection, 1 MHz	40 dB
Spurious Response Rejection, 1 MHz	105 dB
Signal-to-Noise Ratio, 1 MHz	60 dB
Frequency Response, 1 MHz \pm 3 dB	40 Hz~2.6 kHz
Total Harmonic Distortion, 1 MHz	0.5%

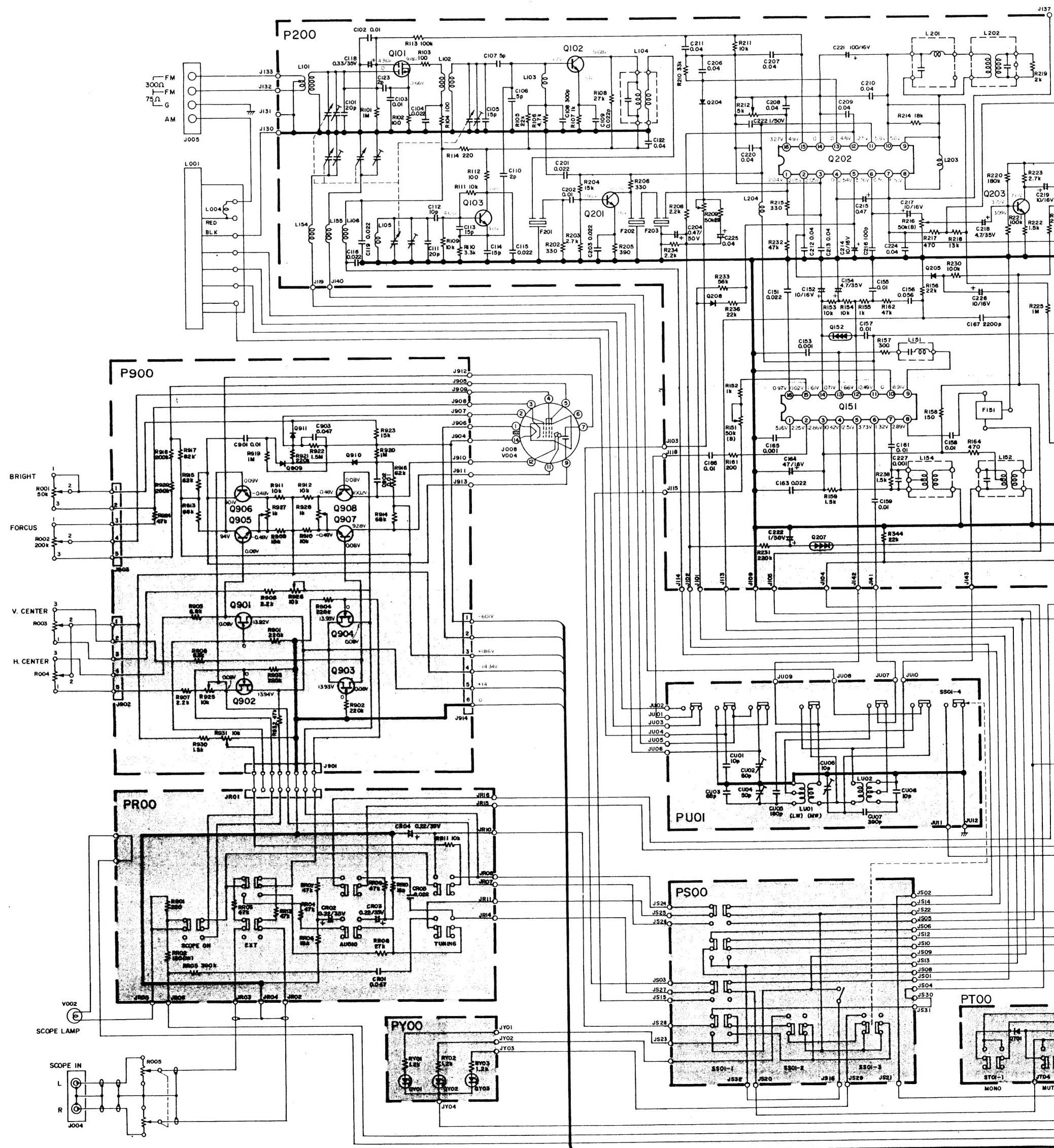
LW TUNER SECTION

Frequency Range	145~380 kHz
Usable Sensitivity (26 dB S/N 30% Mod., 250 kHz)	250 μ V
Selectivity, 250 kHz \pm 9 kHz	24 dB
Image Rejection, 250 kHz	37 dB
IF Rejection, 250 kHz	43 dB
Spurious Response Rejection, 250 kHz	84 dB
Signal-to-Noise Ratio, 250 kHz	51 dB
Frequency Response, 250 kHz \pm 3 dB	40 Hz~1.1 kHz
Total Harmonic Distortion, 250 kHz	0.5%

GENERAL

Power Requirements	220 V AC, 50 Hz
	(E and N versions are featuring an external voltage selector for use on 110/120/240 V.)
	Other versions can be converted by a qualified technician to operate on 110/120/240 V.)
Power Consumption	30 W
Semiconductor Complement	
Integrated Circuits	4
Transistors	20
Diodes	19
Field Effect Transistors	5
Dimensions	
Panel Width	416 mm (16-3/8")
Panel Height	146 mm (5-3/4")
Depth	301 mm (11-7/8")
Weight	
Unit alone	8.5 kg (18.7 lbs)
Packed for shipment	10.5 kg (23.1 lbs)

SCHEMATIC DIAGRAM



MODEL 2110L

